

# Exhibit 1

(REDACTED)

**UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK**

GARY KOOPMANN, TIMOTHY KIDD and  
VICTOR PIRNIK, Individually and on Behalf of All  
Others Similarly Situated,

Plaintiff,

v.

FIAT CHRYSLER AUTOMOBILES N.V., FCA US,  
LLC, SERGIO MARCHIONNE, RICHARD K.  
PALMER, SCOTT KUNSELMAN, MICHAEL  
DAHL, STEVE MAZURE and ROBERT E. LEE

Defendants.

No. 15 Civ. 7199 (JMF)

**EXPERT REBUTTAL REPORT OF JAMES M. LYONS**

**September 26, 2018**

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## **I. INTRODUCTION**

1. My name is James M. Lyons. I have been employed since October 2014 as a Principal Consultant by Trinity Consultants Inc. (Trinity) and work at Trinity's Sacramento California office located in Suite 400, 3301 C Street. Trinity is an environmental consulting company that specializes in air pollution control as well as other scientific areas. In October 2014, Trinity acquired my former employer Sierra Research, Inc. (Sierra), which was also an environmental consulting firm specializing in research and regulatory matters pertaining to air pollution control.

2. I joined Sierra in 1991 as a Senior Engineer and became a Senior Partner in the firm in 1996. My particular area of expertise is providing engineering and technical assistance to clients that are involved with regulations that are intended to control emissions from motor vehicles and other mobile sources. My responsibilities at Sierra and Trinity include assisting clients in applying for certification of new gasoline and diesel engines and vehicles from the United States Environmental Protection Agency ("EPA") and California Air Resources Board ("CARB").

3. Prior to my employment at Sierra, I was employed by CARB, from 1985 to 1991. I began my career at CARB as a member of the New Vehicle Certification Section of the agency's Mobile Source Division (MSD) where I was initially exposed to the new vehicle certification regulations and procedures. During my time in New Vehicle Certification Section, I was also involved in the development of new regulations for certification of so-called "Gray Market" vehicles. I next moved to the Planning Section where I was assigned to a number of more research orientated projects, some of which included a focus on differences in emissions from in-use gasoline and diesel vehicles during on-road operation as compared to the laboratory testing involved in the

new vehicle certification process and the ability of in-use vehicles to meet certification emission standards. I was involved in projects related to the impacts of fuel composition on emissions as well as with alternative fuels and alternatively fueled vehicles.

4. My last position at CARB was as the manager of MSD's Toxics and Fuels section where I had the lead responsibility for developing more stringent new vehicle certification regulations to control evaporative emissions from light-duty vehicles among other responsibilities.

5. After moving from CARB to Sierra in 1991, I continued to be involved with the new certification of new engines and vehicles ranging from small gasoline-powered engines used in lawn and garden applications to heavy-duty diesel engines used in non-road vehicles and locomotives. My work in this area has continued while at Trinity.

6. In addition, while at Sierra and Trinity, I have worked on a variety of other types of projects related to mobile source emissions control. The general scope of which can be seen from the list of publications included in my resume, a true and correct copy of which, is attached to this report as Attachment A.

7. I have also had, since 1991, responsibility for publishing a monthly, subscription based, newsletter known as "CVS News" that documents the regulatory activities of CARB related to mobile sources and fuels. A listing of the article titles that have appeared in the CVS News since I became involved with it in 1991 is attached as Attachment B.

8. I am a member of the Society of Automotive Engineers, Inc. (SAE) and the American Chemical Society (ACS).

9. My firm is being compensated at the standard hourly rate of \$340 for my work in this case, other than for time related to deposition and trial testimony, for which my firm is being compensated at the standard hourly rate for such services of \$390. My compensation is not contingent on the outcome of this litigation.

10. The cases in which I have testified as an expert at trial or by deposition within the preceding four years are *Orange County Water District v. Unocal Corp., et al.*, No. 8:03-cv-01742-CJC (DJM); *People of the state of California, Ex Rel. California Air Resources Board v. BP West Coast Products LLC*, No. C12-00567 (Sup. Ct. Ca.); and *Stant USA Corporation v. Briggs & Stratton Corporation*, No. 1:13-cv-01908-TWP-TAB (S.D. Ind.).

## **II. SCOPE OF ENGAGEMENT**

11. I have been asked to review and respond to the Expert Report of Christopher M. Atkinson SC.D, dated August 15, 2018, concerning the issues raised by Dr. Atkinson concerning the 2014 to 2016 model-year diesel powered FCA RAM 1500 and Jeep Grand Cherokee vehicles (the “Subject Vehicles”). Documents, studies, papers, and other materials that I relied upon in developing my opinions are identified in Attachment C of this report.

12. As my work in this case is on-going, I may update and revise my conclusions. In addition, as new or different information is disclosed or new arguments or opinions are disclosed by the plaintiff or its experts, I may update and revise my conclusions in response.

## **III. SUMMARY OF OPINIONS**

13. Having reviewed Dr. Atkinson’s report and the materials he relied upon in preparing that report, I conclude that Dr. Atkinson has failed to demonstrate that FCA’s Subject Vehicles were not in compliance with EPA and CARB emissions regulations during the Class Period, which I understand began on October 13, 2014 and ended on May 23, 2017 (ECF No. 223).

14. In my opinion, Dr. Atkinson has not supported his conclusions by performing an actual assessment of the calibration features. Despite his apparent experience with diesel engine calibration, his report indicates that he has not actually reviewed the particular calibrations used in the Subject Vehicles, nor has he even provided a complete description of his understanding of their functionality and purpose. Nor has he performed any engineering/scientific analysis of how they function or impact



emissions. Additionally, Dr. Atkinson did not perform any independent scientific/engineering assessment or analysis of emissions data, and he did not observe or document the operation and performance of the calibration features at issue in the Subject Vehicles. Rather, Dr. Atkinson relies on emails and the opinions of others to support his conclusions regarding the calibration features of the Subject Vehicles related to undisclosed AECDs and defeat devices.

15. In order to properly support his conclusions, in my opinion, Dr. Atkinson should have performed a scientific/engineering assessment of the calibration features of the Subject Vehicles that are at issue. The approach Dr. Atkinson employed to arrive at his conclusions—reliance on anecdotal evidence and the opinions of others—is not convincing and simply does not provide the necessary support for the opinions he offers concerning the calibration features on the Subject Vehicles with respect to compliance with the applicable emissions regulation.

16. Specifically, as is discussed in detail in this report, based on my review, Dr. Atkinson has failed to prove that any of the calibration features at issue are either AECDs or defeat devices.

17. With respect to the T\_Engine calibration feature, alternatively described by Dr. Atkinson as “AECD # 5,” Dr. Atkinson has not performed an appropriate analysis concerning whether this feature would be deemed an AECD by the regulatory agencies during the certification process. Additionally, I find that Dr. Atkinson has failed to document and explain whether or how T\_Engine reduces the effectiveness of the emission control system or demonstrate that T\_Engine is either an AECD or a defeat device.

18. With respect to the Vehicle Speed Correction calibration features, referred to by Dr. Atkinson as “AECD # 1” and “AECD # 2,” it is my opinion that Dr. Atkinson has not proven these features are either AECDs or defeat devices. I cannot find a sufficient explanation in his report as to why the Vehicle Speed Corrections would be considered AECDs, and he has not provided reliable evidence to support assertions that these features are defeat devices.

19. With respect to the Valvetrain Cleaning Routine, alternatively referred to as EGR # 12 and described by Dr. Atkinson as “AECD # 3,” Dr. Atkinson has not demonstrated that this calibration feature was not justified by the need to protect the vehicles from damage or accident. Additionally, I find that Dr. Atkinson has failed to demonstrate that the Valvetrain Cleaning Routine is either an AECD or a defeat device.

20. With respect to the calibration feature generally referred to as Online Dosing and at times described by Dr. Atkinson as “AECD # 7,” it is my opinion that Dr. Atkinson has failed to conduct a sufficiently thorough analysis to demonstrate that this feature is an AECD. Additionally, I find that Dr. Atkinson has not shown that Online Dosing reduces the effectiveness of the emission control system, that it is not necessary to protect the vehicles from damage, or that it is a defeat device.

21. With respect to the SCR Catalyst Warm-Up Disablement calibration feature, identified by Dr. Atkinson as “AECD # 6,” it is my opinion that Dr. Atkinson has not provided adequate support to conclude that this feature constitutes either an AECD or a defeat device. His report does not adequately explain how the SCR Catalyst Warm-Up Disablement calibration feature reduces the effectiveness of the entire emission control

system, or why it is not necessary to protect the vehicles from damage, or why it is a defeat device.

22. With respect to the calibration feature known as Adaptation, which Dr. Atkinson labels “AECD # 4,” Dr. Atkinson has not provided reliable evidence concerning the operation of this feature, whether or how Adaptation reduces the effectiveness of the emission control system, or why it is not necessary to protect the vehicle from damage. As a result, I cannot agree that he has proven Adaptation is an AECD or a defeat device.

23. With respect to the Load Governor calibration feature, identified by Dr. Atkinson as “AECD # 8,” it is my opinion that Dr. Atkinson has not provided adequate support to conclude that this feature constitutes either an AECD or a defeat device. His report does not adequately explain whether or how the Load Governor calibration feature reduces the effectiveness of the entire emission control system, why it is not necessary to protect the vehicles from damage, or why it is a defeat device.

24. Additionally, I do not agree that Dr. Atkinson has demonstrated that FCA’s processes and internal controls to ensure compliance with emissions regulations were inadequate or ineffective. In my opinion, Dr. Atkinson’s report does not take into account the process that manufacturers generally followed at the time the Subject Vehicles were certified in determining what calibration features required AECD disclosure. Furthermore, my review of the materials relied on by Dr. Atkinson suggests that Chrysler’s approach to disclosures and discussions with regulators was generally consistent with that of other manufacturers in the era prior to the Volkswagen diesel emissions scandal.

25. As a result of the above conclusions, it is my opinion that Dr. Atkinson has not demonstrated that FCA's statements concerning its compliance with emissions regulations were false and misleading.

#### **IV. THE SUBJECT VEHICLES**

26. As Dr. Atkinson points out in his report, the Subject Vehicles in this case are model-year 2014 to 2016 Ram 1500 and Jeep Grand Cherokee vehicles with 3.0 liter diesel engines. More specifically, the vehicles are identified by their EPA and CARB test group designations ECRXT03.05PV, FCRXT03.05PV, and GCRXT03.05PV, where the initial letter represents the regulatory agency code for the 2014, 2015, and 2016 model-years, respectively.

27. In general, the main pollutants of concern emitted by diesel engines are oxides of nitrogen ("NOx") and particulate matter ("PM"). Diesel engines have little evaporative emissions because diesel fuel is much less volatile than gasoline and because, unlike gasoline vehicles, diesel engines operate at lean air fuel ratios at which exhaust emissions of hydrocarbons ("HC") and carbon monoxide ("CO") are generally not of concern, although emission standards do apply.

28. Both NOx and PM emissions have potential effects related to public health. With respect to NOx, one reason for regulation is that NOx, along with hydrocarbons, undergo photochemical reactions in the atmosphere to form ozone, a principal component of "smog." Similarly, NOx emissions from vehicles, which consist mainly of nitrogen oxide ("NO"), contribute, mainly because of atmospheric photochemistry, to ambient concentrations of nitrogen dioxide ("NO2"), a respiratory system irritant. Both direct tailpipe emissions of PM and PM formed from NOx

emissions in the atmosphere via gas-to-particle conversion also pose potential public health concerns. Efforts to reduce emissions of NO<sub>x</sub> and PM have been taken to assist states in complying with the federal National Ambient Air Quality Standards (“NAAQS”) that have been established for ozone, NO<sub>2</sub>, and PM.

29. The Subject Vehicles’ 3.0 liter diesel engine was designed with highly computerized engine and emission control systems. The key components of the emission control system include the exhaust gas recirculation (“EGR”) system, used as a means of controlling engine-out NO<sub>x</sub> levels in the exhaust exiting the engine, and a catalytic exhaust after-treatment system, used to further reduce engine-out NO<sub>x</sub> emissions as well as trap and oxidize engine-out PM emissions before the exhaust gases exit the vehicle tailpipe.

30. EGR reduces engine-out NO<sub>x</sub> emissions by lowering peak combustion temperature and pressures, which are directly related to the formation of NO<sub>x</sub> in the combustion chamber. However, use of EGR can lead to issues involving combustion stability, engine starting and warm-up, vehicle acceleration, power output, and fuel efficiency. Given this, EGR flow rates are generally modified depending on engine and vehicle operating conditions and may in some cases be dramatically reduced or eliminated. In addition, EGR tends to increase engine-out PM emissions, with increasing EGR flow rates generally leading to increased PM emissions. Higher PM emissions in turn increase the frequency at which Diesel Particulate Filter (“DPF”) regenerations are needed.

31. The catalytic exhaust after-treatment used in the Subject Vehicles incorporates a diesel oxidation catalyst (“DOC”), DPF, and a selective catalytic reduction

(“SCR”) catalyst system. The DOC functions to oxidize engine-out HC, CO, and, to a lesser extent, PM emissions. In addition, it promotes the effectiveness of the DPF and SCR systems by oxidizing NO, the primary constituent of engine-out NO<sub>x</sub> emissions, to NO<sub>2</sub>, which is more chemically reactive.

32. The DPF acts as a filter that collects PM emissions. In general, the amount of PM collected by the DPF is sensed and monitored by a computerized emission control system. Once the DPF is “full” of PM, the collected PM is burned to clear the filter in a process that is commonly referred to as “regeneration.” In general, regeneration is “actively” initiated by the computerized engine control system, which directs fuel to be injected into the cylinders after combustion has occurred (*i.e.* “post combustion injection”). This unburned fuel is then oxidized by the DOC, which results in increased exhaust gas temperatures. Once the exhaust gas temperature becomes high enough, the collected PM, which is primarily carbonaceous material, oxidizes. In addition to active regeneration, “passive regeneration” can occur spontaneously if engine exhaust gas temperatures are high enough, regardless of whether or not the DPF is full.

33. The SCR system involves injection of a urea solution commonly known as “AdBlue” or “diesel emissions fluid” (“DEF”), upstream of the SCR catalyst, in a process known as “dosing.” If exhaust temperatures are sufficiently high, urea decomposes into ammonia, which reacts on the SCR catalyst to reduce NO<sub>x</sub> emissions by chemically converting the NO<sub>x</sub> into N<sub>2</sub> and other less harmful compounds. The DEF dosing system of the Subject Vehicles includes two heated exhaust gas NO<sub>x</sub> sensors. The first NO<sub>x</sub> sensor is located in the exhaust system downstream from the turbocharger and upstream from the DOC and is referred to as the “engine-out” NO<sub>x</sub> sensor. The second NO<sub>x</sub>

sensor is located downstream from the SCR catalyst and is referred to as the “tail-pipe” NO<sub>x</sub> sensor. Both sensors provide information to the computerized engine and emission control system to determine the injection rate of DEF.

34. The effectiveness of SCR systems in reducing NO<sub>x</sub> emissions depends on several factors, the most important of which are generally exhaust gas temperature, DEF dosing rates, and ammonia storage on the surface of the SCR catalyst. At low exhaust gas temperatures the conversion efficiency of the SCR catalyst is limited and DEF dosing is usually reduced or turned off in order to prevent damage to the system resulting from the formation of urea-related deposits on the DEF injection system, as well as on the catalyst itself. These deposits inhibit proper dosing and mixing of the DEF in the exhaust stream and impair the performance of the catalyst. In addition, at high exhaust gas temperatures, the conversion efficiency of the SCR system is also limited and DEF dosing is usually reduced in order to minimize tailpipe emissions of unreacted ammonia – which is referred to as “ammonia slip.” Even under optimal temperature conditions, DEF dosing needs to be carefully monitored and controlled to ensure adequate ammonia storage while preventing ammonia slip.

35. Although ammonia is an unregulated pollutant, the regulatory agencies have developed a policy that specifies that it be controlled to an average level of 10 parts per million in the tailpipe exhaust of diesel vehicles with SCR systems<sup>1</sup> because ammonia can be an irritant. In addressing ammonia slip, manufacturers must provide an explanation as to how they comply, which can be done using data from emissions testing or use of “NO<sub>x</sub> slip” catalysts in the exhaust systems of diesel engines in order to oxidize

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<sup>1</sup> See, e.g., “Selective Catalytic Reduction Workshop,” CARB, [https://www.arb.ca.gov/msprog/onroadhd/documents/epa-arb\\_scr\\_workshop\\_7-20-10.pdf](https://www.arb.ca.gov/msprog/onroadhd/documents/epa-arb_scr_workshop_7-20-10.pdf), accessed on September 25, 2018.

ammonia. However, ammonia oxidized by a NOx slip catalyst contributes to the vehicle's overall NOx emissions.

## **V. EMISSIONS REGULATIONS, AND NEW VEHICLE AND ENGINE CERTIFICATION**

36. In this section, I provide an overview of the relevant emissions regulations, and the new vehicle and engine certification process as it is enforced in the United States by EPA and CARB. For light-duty vehicles, the applicable EPA regulations can be generally found at Title 40 CFR parts 85, 86, 1066, 1068, and 600 and include numerous guidance documents that have been published over the years and are available on EPA's website.<sup>2</sup> The applicable CARB emission regulations are found at Title 13, California Code of Regulations, Division 3, Chapters 1, 2, 3, and 4.4 and also include test procedures and guidance documents that are available at various locations on CARB's website.<sup>3</sup> Specific portions of the CARB emission regulations frequently incorporate some but not all of the equivalent portions of EPA emissions regulations by reference.

### **A. The Emissions Regulations and Federal Test Procedures**

#### **1. Development of the Emissions Regulations**

37. The development of the new vehicle emissions certification regulations that apply to the Subject Vehicles can be traced back to actions taken in California during the early 1960s, particularly the creation of CARB in 1967 and the establishment of EPA in 1970. Early emissions standards were based on the same type of laboratory based

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<sup>2</sup> "Search—EPA's Transportation and Air Quality Document Index System (DIS)," EPA, <https://iaspub.epa.gov/otaqpub/>, accessed September 25, 2018.

<sup>3</sup> "Mobile Sources Program Portal – Manufacturers, CARB," <https://www.arb.ca.gov/msprog/manufacturers.htm>, accessed September 25, 2018.



dynamometer testing that continues to be used today, and they included highly detailed specifications for test equipment, test conditions (including the weight of the vehicle) and fuels, as well as the manner in which the vehicle is driven.

38. Early testing generally used the FTP-72 driving cycle, which is also known as the Urban Dynamometer Driving Schedule (“UDDS”) or LA-4 cycle. This cycle involves 7.5 miles of relatively low speed, stop-start, driving with moderate acceleration rates at an average speed of about 20 miles per hour and a maximum speed of about 57 miles per hour. The test based on this driving cycle involves the collection of emissions during two test “phases” commonly referred to as “Bag 1” and “Bag 2.” Bag 1 includes a cold start of the vehicle and constitutes the first 505 seconds of operation, while Bag 2 constitutes the remaining 867 seconds of the 1,372 second long test, at which point the vehicle is turned off.

39. The FTP-72 driving cycle and test was modified during the 1970s through the addition a third phase referred to as “Bag 3.” Bag 3 repeats the same driving pattern as Bag 1, but Bag 3 begins with a “hot start” because it occurs 10 minutes after the vehicle is turned off at the completion of Bag 2. This change increased the duration of the driving cycle and test to 1,877 seconds, the length of the test to about 11 miles, and the average speed to about 21 miles per hour. The revised test is known as the FTP-75.

40. As part of the process related to the establishment of the Corporate Average Fuel Economy (CAFE) standards during the 1970s, another driving cycle was developed as part of the Highway Fuel Economy Test (HWFET). This driving cycle was intended to reflect highway driving, in contrast to the urban driving characterized by the FTP-72 and FTP-75. The HWFET cycle lasts 765 seconds, covers about 10 miles of

vehicle operation, and has average and maximum speeds of about 48 and 59 miles per hour, respectively. Again testing is performed on a dynamometer under laboratory conditions similar to those used for the other tests. The only pollutant emission standard that applies to the HWFET is a limit on NO<sub>x</sub> emissions, which must be equal to or less than 1.33 times the applicable FTP-75 NO<sub>x</sub> emission standard.

41. By the late 1980s new vehicle and engine control and operating technology had developed to the point where highly sophisticated computer controls were in use along with more sophisticated fuel injection, emission control, and transmission technologies. It was clear that the trend toward more sophisticated computer control and operating systems would continue.

42. As a result of these technological advancements, the regulatory agencies became concerned about the control of emissions during driving and operating conditions that were not part of the FTP-75 or HWFET procedure. In the mid-1990s, the regulatory agencies concern regarding off-cycle emissions lead to EPA's 1996 adoption of the Supplemental Federal Test Procedure ("SFTP"), which added emission standards and two new test procedures known as the US06 and SC03. In promulgating the SFTP regulations, EPA stated that: "This rulemaking revises the tailpipe emission portions of the Federal Test Procedure (FTP) for light-duty vehicles (LDVs) and light-duty trucks (LDTs). The primary new element of the rulemaking is a Supplemental Federal Test Procedure (SFTP) designed to address shortcomings with the current FTP in the representation of aggressive (high speed or high acceleration) driving behavior, rapid speed fluctuations, driving behavior following startup, and use of air conditioning." [61 FR 54894, October 22, 1996.]

43. The primary purpose of the US06 test procedure is to ensure emission control under more aggressive driving conditions (e.g. higher acceleration and deceleration rates) and higher speeds than the FTP-75 and HWFET. The US06 driving cycle covers about 8 miles of driving that is performed at an average speed of about 48.5 miles per hour with a maximum speed of about 80 miles an hour. It lasts 596 seconds.

44. The SC03 driving cycle covers about 3.5 miles at an average speed of about 21.5 miles per hour with a maximum speed of about 55 miles per hour and lasts 596 seconds. Testing over the SC03 driving cycle is performed at 95°F with the vehicles air conditioning system turned on.

45. The actual vehicle operation specified for all of the driving cycles discussed above is established by tables of second by second vehicle speed targets, which are part of the emissions regulations and are often depicted graphically with speed data presented on the y-axis and time presented on the x-axis.

46. In addition to the development of emissions tests and associated driving cycles, given the focus of Dr. Atkinson's report on AECDs and defeat devices, it is important to understand the history of the provisions of the emission regulations that pertain to these issues.

47. EPA first discussed Auxiliary Emission Control Devices ("AECDs") in Advisory Circular No. 24, which was published in December 1972. Advisory Circular No. 24 defined AECD: "An AECD is any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for purposes of activating, modulating, delaying, or deactivating the operation of any part

of the emission control system.”<sup>4</sup> Also in Advisory Circular No. 24, EPA defined defeat devices as follows: “A defeat device is an AECD that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal urban vehicle operation and use, unless

- Such conditions are substantially included in the Federal emission test procedure, or
- The need for the AECD is justified in terms of protecting the vehicle against damage or accident, or
- The AECD does not go beyond the requirements of engine starting.”<sup>5</sup>

48. I strongly disagree with Dr. Atkinson’s assertion, expressed in footnote 6 on page 68 of his report, that EPA considers the FTP-75 to be the only relevant test for assessing operation of AECDs. EPA adopted regulations incorporating additional test procedures based on the HWFET, US06 and SC03 driving cycles into the emissions regulations for the specific reason that the FTP-75 was not representative of all normal vehicle operating conditions, and in light of the knowledge that vehicles are designed to operate differently under different driving conditions and the understanding that AECDs would also operate differently under different driving conditions. That EPA considers operation over cycles other than the FTP-75 can be seen at 40 CFR, Section 86.1809-01.

49. In the early 1970s when the concepts of AECDs and defeat devices were first developed, most, if not all, new vehicles and engines were exclusively operated and controlled based on mechanical principles, and the Federal emissions test procedure referenced above consisted solely of what is now referred to as the FTP-75 test. By the time 2014 model-year vehicles were being certified, virtually all aspects of engine and

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<sup>4</sup> “MSPC Advisory Circular; December 11, 1972,” EPA, [https://iaspub.epa.gov/otaqpub/display\\_file.jsp?docid=14341&flag=1](https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14341&flag=1), accessed on September 25, 2018.

<sup>5</sup> *Id.*

emissions control system operation on both gasoline- and diesel light-duty vehicles were computer controlled with most functions relying on the use of data from sensors.

50. In December 1978, EPA modified AC No. 24 (24-2) to address AECDs and defeat devices in the context of the computerized control and operating systems that were then being introduced on new vehicles and engines. Given EPA's recognition that the FTP 75 emissions test was not representative of all types of driving, one aspect of Advisory Circular No. 24-2 was allowing manufacturers to use NO<sub>x</sub> emissions data measured on the Highway Fuel Economy Test ("HWFET")<sup>6</sup> procedure to demonstrate that an AECD was not a defeat device. EPA later added a NO<sub>x</sub> standard for emissions during the HWFET procedure must not be greater than 1.33 times the NO<sub>x</sub> standard that applies over the FTP 75. [40 CFR § 86.1811-04(j).]

51. EPA in 1981 also defined the terms AECD and defeat device in Title 40 CFR § 86.082-2. The AECD definition is substantively the same as published in Advisory Circular No. 24 in 1972.

52. As noted above, EPA promulgated the SFTP regulations in 1996, which added emissions standards based on testing over the US06 and SC03 driving cycles.

53. In May 1998, EPA issued VPCD-98-08 which addressed AECDs in general and in particular operations related to SFTP conditions including "lean on cruise" and "A/C on." Also, in April 1999, EPA issued VPCD-99-06 related to the new Compliance Assurance Program ("CAP2000") program, which reminds manufacturers that AECDs must be reported in the certification application and justified. Further, in May 1999, EPA promulgated CFR § 86.1809-01, which addresses defeat devices. In

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<sup>6</sup> See "OMSAPC Advisory Circular; December 6, 1978, [https://iaspub.epa.gov/otaqpub/display\\_file.jsp?docid=14342&flag=1](https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14342&flag=1), accessed on September 25, 2018.

January 2001, EPA again updated Advisory Circular No. 24 (24-3/CCD-01-02) (January 2001) to specifically address issues related to AECDs and defeat devices in the context of heavy-duty engines and vehicles.

54. In 2014, EPA modified the definition of defeat device at 40 CFR § 86.1803-01 to add a fourth exception for emergency vehicles. EPA also promulgated the Tier 3 regulations, which at 40 CFR § 86.1811-17 allows limited enrichment for engine protection of less than 4% Lean Best Torque (LBT) as not an AECD as well as enrichment for OBD checks and that enrichment AECDs must behave the same with the air conditioning systems turned on. Also in 2014, EPA updated VPCD-99-06 with CD-14-19, which expands the AECD level of detail somewhat with discussions of engine protection.<sup>7</sup>

55. With respect to light-duty vehicles, the emissions regulations have been primarily developed for application to gasoline-powered vehicles, which make up the vast majority of the light-duty vehicle population in the United States. Given the differences between gasoline and diesel engines and their emission control systems, which I discuss later in this report, certification of light-duty diesel vehicles by the regulatory agencies has been a relatively novel rather than routine practice even with the increase in the number of light-duty vehicles certified since the beginning of this decade. One important reason for the increase in number of light-duty diesel vehicle models certified beginning in the late 2000's is that they are more fuel efficient than comparable gasoline vehicles, which assists manufacturers in complying with EPA and CARB

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<sup>7</sup> "Certification Application Reporting Guidance; CD-14-19," EPA, [https://iaspub.epa.gov/otaqpub/display\\_file.jsp?docid=33582&flag=1](https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=33582&flag=1), accessed September 25, 2018.

greenhouse gas (GHG) emissions standards and the Corporate Average Fuel Economy (CAFE) standards of the National Highway Traffic Safety Administration (NHTSA).

2. Emissions Regulations and Federal Test Procedures During the Relevant Time Period

56. Based on data available on the U.S. EPA website,<sup>8</sup> the Subject Vehicles were certified to U.S. EPA Tier 2, Bin 5 and California LEV II, LEV standards for the 2014 to 2016 model-years. Given this, I disagree with Dr. Atkinson's statements in his report that the Subject Vehicles were certified to Tier 2, Bin 4 emission standards.

[Atkinson Report, at ¶ 91.]

57. Given the time frame, the Subject Vehicles were required to comply with emission standards when tested on the FTP-75, HWFET, US06, and SC03 emission cycles. They were also required to comply with In-Use SFTP standards. I will discuss the specific standards that apply to the Subject Vehicles later in this report.

58. Further, as I have described above, emissions from vehicles are measured under laboratory conditions using chassis dynamometers. In my experience, in-use emissions are higher than those measured during dynamometer testing. There are a number of reasons why this is the case, which can include effects that are not captured in the dynamometer testing such as road grade, road roughness, tire pressures and condition, wind, rain, cold or hot temperatures, accessory loads (including air conditioning) and payloads in excess of that specified for certification testing, which could include trailer towing.

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<sup>8</sup> "Annual Certification Data for Vehicles, Engines, and Equipment," EPA, <https://www.epa.gov/compliance-and-fuel-economy-data/annual-certification-data-vehicles-engines-and-equipment>, accessed on September 25, 2018.

59. In-use vehicles are subject to emission standards based on emissions test results obtained using the federal test procedures. There are no test procedures or emissions standards that apply to the Subject Vehicles as they are being driven on-road.

3. Changes to Agencies' Focus After VW

60. Following the announcement of the emissions-related issues with VW diesel vehicles in September 2015, the regulatory agencies have dramatically increased their focus on AECDs and defeat devices, particularly on light-duty diesel vehicles.<sup>9</sup> These activities have included a series of AECD working group meetings focused on different types of vehicles and engines that have been recently conducted by CARB and in which I understand staff from EPA have participated in. My understanding is that the goals of these working group meetings are to provide for a better understanding of the regulatory agencies needs and expectations with respect to AECD and defeat device related issues in light of their experience in the VW matter.

61. In summary, while the regulatory definition of an AECD and defeat device has remained consistent, the regulatory agencies have provided updates via guidance to clarify the regulatory requirements as vehicle technology has evolved over time. As noted above, in the light-duty vehicle area, the emergence of the VW diesel matter in late 2015 was a watershed event that triggered a dramatic increase in the focus and scrutiny of the regulatory agencies on AECDs and defeat devices during the certification process.

62. As shown above, prior to the VW diesel emissions issue, the regulatory agencies expanded the Federal Test Procedures to include a broader range of driving

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<sup>9</sup> See "EPA Conducted Confirmatory Testing; CD-15-24," EPA, <https://19january2017snapshot.epa.gov/sites/production/files/2015-10/documents/cd-mfr-guid-ltr-2015-09-25.pdf>, accessed September 25, 2018; "IUC-2015-008," CARB, [https://www.arb.ca.gov/newsrel/arb\\_iuc\\_2015\\_09\\_25\\_final\\_signed\\_letter.pdf](https://www.arb.ca.gov/newsrel/arb_iuc_2015_09_25_final_signed_letter.pdf), accessed September 25, 2018.



cycles and operating conditions to ensure that vehicle emission control systems and calibrations provided the expected level of emissions control across the range of in-use operating conditions. That this was in fact the regulatory agencies' intent is supported by a statement from Byron Bunker of EPA: "We create the tests themselves. It really matters to get that right because manufacturers are going to design to the test, and that's great as long as the test is good."<sup>10</sup>

63. While the regulatory agencies have clearly been seeking compliance with EPA requirements of 86.1844-01(d) and (e), my experience is that the degree of oversight and the level of detail provided prior to the VW diesel emissions issue varied widely depending on the vehicle manufacturer and the regulatory agency staff assigned to review a particular manufacturer's certification applications. Further, as vehicles have become more complex and reliant upon computer control and operation calibrations, there was a practical issue in identifying and documenting all functions that could literally be interpreted as falling under the 40-year-old AECD definition. Again, this was recognized by the regulatory agencies and resulted in the expansion of the Federal Test Procedures rather than direct requirements to submit calibration software for agency review. For example, following the identification of calibration features that changed how heavy-duty on-road diesel engines operated under steady-state conditions not included in the applicable Federal Test Procedures, the regulatory agencies responded with new testing requirements (e.g. a steady-state Supplemental Emissions Test and Not-To-Exceed emission limits) rather than requirements that manufacturers provide actual calibrations.

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<sup>10</sup> See "Transportation lab revs up for role in climate crackdown," E&E News, <https://www.eenews.net/stories/1060019511>, accessed on September 25, 2015.

**B. The Certification Process**

1. Overview

64. To receive certification, manufacturers must demonstrate using pre-production vehicles that an “emissions standard” usually cast in terms of grams of emissions allowed per mile of vehicle travel (g/mi) can be met. Emission standards were originally set for exhaust emissions of HC, NO<sub>x</sub>, and CO. Later emission standards were established for other pollutants including evaporative HC emissions, PM, and GHGs.

65. As I have indicated previously, the emission standards that apply to the Subject Vehicles are based on results from testing performed in accordance with the Federal Test Procedures. These emission standards do not apply outside of the test procedures, for example, to emission occurring while the vehicle is operating in-use on roads. As I have also noted, emissions under in-use conditions are expected to be different than those measured during emissions testing using the Federal Test Procedure. Manufacturers are required, however, as I discuss below, to provide information about how the engine and emission control system will operate under conditions outside of those covered during the emissions testing required for certification.

66. Emission standards apply at specific mileages up to a maximum mileage that is referred to as the “regulatory useful life.” For light-duty vehicles, this useful life period was generally set at 50,000 miles during the early years following the implementation of the certification process and has been extended to generally be either 120,000 or 150,000 miles. Compliance with emission standards is determined based on results from vehicle emission testing performed on chassis dynamometers using specific driving cycles under carefully controlled laboratory conditions that included requirements for operation on specific test fuels. In addition, for diesel vehicles, special procedures

have been developed to address emission testing results for emissions associated with events that may not occur during standard emission testing like DPF regeneration. This is done through the use of infrequent regeneration adjustment factors (IRAFs).

67. The table below provides a summary of the relevant EPA and CARB NO<sub>x</sub> related emission standards, driving cycles, and vehicle mileage points that apply to the Subject Vehicles based on their 50-state certification at federal Tier 2 Bin 5 and CARB LEV-II emission levels and “LDT4” classification by the regulatory agencies.

**EPA and CARB NO<sub>x</sub> Related Emission Standards Applicable to the Subject Vehicles**  
(grams/mile)

Test Cycle	NO <sub>x</sub>	NMHC+NO <sub>x</sub>	Mileage
FTP-75 <sup>a</sup>	0.05	—	50,000
FTP-75 <sup>a</sup>	0.07	—	120,000
US06	—	0.60	4,000
SC03	—	0.44	4,000
In-Use SFTP <sup>b</sup>	—	1.41	120,000

a. An emission standard of 1.33 times the FTP-75 NO<sub>x</sub> standards applies during the HWFET test.

b.  $0.35 \times (\text{FTP results}) + 0.28 \times (\text{US06 results}) + 0.37 \times (\text{SC03 results})$

## 2. Certification Application

68. New vehicle and engine manufacturers must follow an established process to “request” certification of their products from the regulatory agencies. The basic steps in that process and details regarding the requirements for submission of information to the regulatory agencies are described on the EPA<sup>11</sup> and CARB<sup>12</sup> websites. The main

<sup>11</sup> “Certification and Fuel Economy for Light-Duty Passenger Cars and Trucks,” EPA, <https://www.epa.gov/vehicle-and-engine-certification/certification-and-fuel-economy-light-duty-passenger-cars-and-trucks>, accessed on September 25, 2018.

<sup>12</sup> “On-Road Light-Duty Emissions Certification Requirements,” CARB, <https://www.arb.ca.gov/msprog/onroad/cert/ldctp/ldctp.htm>, accessed on September 25, 2018.

efforts in the certification process are related to the development and submission of an application for certification. The information and format of the certification are specified in guidance from the regulatory agencies, primarily EPA and that guidance has changed over time to address changes in the emission regulations. For example, in 1999, EPA published guidance on issues related to certification applications to assist manufacturers with the transition to compliance with what are known as the CAP2000 regulations<sup>13</sup> and then revised this guidance in light of new regulatory requirements in late 2014 for use in preparing certification applications for 2016 and later model-year vehicles.<sup>14</sup>

69. The application and associated materials are reviewed by the agencies to determine whether the vehicles for which certification is being requested comply in material respects with all of the regulatory requirements.

70. Assuming that the agencies find this to be the case, they “certify” the vehicles by issuing a Certificate of Conformity (“CoC”) in the case of EPA and an Executive Order (“EO”) in the case of CARB. The elements of the application include:

- **A Technical Description of the Vehicle:** This document describes the vehicle in great detail, including the engine control and emission control systems and their components. It includes schematics and other types of tables and figures that provide data and descriptions of components and their functions.
- **Parts List:** A list of the parts including part numbers for emission-critical parts, which must be disclosed for each model in the application.
- **On-Board Diagnostics (“OBD”) System Information:** This document describes in great detail how the OBD monitoring required by the emissions regulations is performed, including monitoring triggers for monitors, thresholds, enablement criteria and monitoring frequency. It must also include manufacturer test data that demonstrates that the OBD system

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<sup>13</sup>See “CAP 2000 Implementation: Guidance Documents and Workshop; VPCD-99-06,” EPA, [https://iaspub.epa.gov/otaqpub/display\\_file.jsp?docid=14158&flag=1](https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14158&flag=1), accessed on September 25, 2018.

<sup>14</sup>See “Certification Application Reporting Guidance; CD-14-19,” EPA, [https://iaspub.epa.gov/otaqpub/display\\_file.jsp?docid=33582&flag=1](https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=33582&flag=1), accessed September 25, 2018.

complies with the requirements of the emissions regulations. Because the CARB regulations in this area are more prescriptive than those of EPA, manufacturers often receive OBD approval from CARB, and then submit the CARB approval to EPA along with the required OBD documentation.

- **Vehicle Maintenance Schedule:** Given that there are regulatory limits regarding the frequency at which emissions related maintenance can be performed, the manufacturer's schedule of emissions related maintenance must be disclosed and approved by the regulatory agencies during the certification process.
- **Emissions Test Data and Durability Demonstration:** The emissions test data from the certification test vehicle, which is normally tested after 4,000 miles of operation and the Deterioration Factors (DFs) for each regulated pollutant, which are used to project emissions to the end of the useful life period, is provided for comparison with emission standards. The durability demonstration for light-duty vehicles can include bench aging of emissions related components. Manufacturers generally seek approval of their durability demonstration programs in advance from the regulatory agencies. It should be noted that the regulatory agencies can also require confirmatory certification testing by requiring that the manufacturer deliver the certification vehicle for testing to be performed by the agency. If confirmatory testing is performed, those results become the official certification emissions values.
- **Identification and Description of Adjustable Parameters:** To the extent that emissions related components that are adjustable are present on a vehicle, the emissions regulations require that the vehicles must comply with emissions standards and other requirements over the entire adjustable range or include anti-tampering devices. The certification application must identify all adjustable parameters and describe anti-tampering devices.
- **AECD Descriptions:** Auxiliary emission control devices (AECDs) must be described and the application must identify sensed parameters that change controlled parameters. A worksheet of sensed vs. controlled parameters related to AECDs is required to be submitted as a part of the certification application.
- **Vehicle Emissions Control Label:** All certified vehicles must have an emissions control label that is permanently attached and that provides details regarding the vehicle and the standards to which it is certified. The contents of the label and physical requirements are specified by regulations. The content must be described and submitted to EPA and CARB for approval, and physical inspection of labels may be required.
- **Warranty Statement:** Manufacturers must warrant that their vehicles are designed, built, and equipped to comply with the emissions regulations at time of sale and are free from defects in materials and workmanship that would

cause the vehicle to fail to comply with the emissions regulations. This statement, which is included in the owner's manual, must be provided to the regulatory agencies for review and approval.

- **Owner's Manual:** The proposed owner's manual, which includes the vehicle maintenance schedule and approved warranty statement, must be submitted to the regulatory agencies for review and approval.

71. In addition, the certification request must include an attestation made by a representative of the vehicle manufacturer that actual production vehicles will be the same in all material respects to the certified vehicle configuration as described in the application and approved by the regulatory agencies.

72. In addition to the certification process leading to the award of a CoC and/or EO, there are also ongoing requirements that have to be satisfied to be in compliance with the emissions regulations. Materials related to the certification application are generally submitted to the regulatory agencies electronically using what is known as the Verify system for EPA and what is known as the DMS system for CARB.

### 3. Ongoing Requirements

73. As noted above, issuance of a CoC or an EO is not the end of the process required to comply with the emissions regulations. Manufacturers are responsible for a number of ongoing requirements and obligations including:

- **Reporting Running Changes:** Manufacturers are allowed to make changes to their certified vehicles during the course of production provided that they notify the regulatory agencies and provide data and information that indicates that the vehicles will remain in compliance with the emission requirements after the changes are made. All model updates, calibration changes, and part number changes must be filed before the change is made.
- **Production Reports:** Manufacturers are required to provide detailed reports of the certified vehicles they produce during each model-year to the regulatory agencies.
- **Warranty and Defect Reporting:** Manufacturers must fulfill their emission control warranties provided that the vehicles have not experienced emission

control system tampering. Manufacturers are also required under the emission regulations to track warranty claims on emissions related components as well as other data to identify defects in design, build, materials, or workmanship. When certain thresholds are met, a defect investigation must be undertaken. If a threshold of confirmed defects is met, defect reports must be submitted to regulatory agencies and service campaigns and recalls must be considered and implemented if necessary.

- **In-Use Verification Programs (IUVs):** As is discussed in more detail later in this report, IUVs are an element of the CAP 2000 regulation and require that manufacturers procure vehicles from customers at various ages and then perform emissions testing of the vehicles. The manufacturers must report the data they collect to the regulatory agencies. The IUV requirements were implemented to shift the focus of emissions compliance demonstrations from the pre-production vehicles involved in generating the emissions data included in the certification application to the performance of actual in-use production vehicles under the same test conditions.
- **In-Use Compliance:** Certified vehicles are required to comply with emission standards and OBD requirements throughout their useful life periods. In addition to IUV testing, the regulatory agencies may also perform laboratory testing of in-use vehicles using the certification test procedures. In addition, both EPA and CARB have the right to enter manufacturer production facility to perform Selective Enforcement Audits (SEAs), which involve inspections and emissions testing of vehicles to determine if they comply with the emissions regulations. In the event that the regulatory agencies believe that in-use vehicles do not comply with the emission standards or OBD requirements, manufacturers may be required to perform recalls and service campaigns.
- **Recalls:** If it becomes clear that there are substantial emissions related defects present in a manufacturer's vehicles or that their vehicles do not comply with the emissions regulations for other reasons, manufacturers may voluntarily or under orders from the regulatory agencies undertake recall programs to bring the vehicles back into compliance. Recalls must be approved by the regulatory agencies and there are reporting requirements imposed to track the progress of recalls.

4. Manufacturer – Regulatory Agency Communications During Certification

74. The general practice of EPA and CARB is to assign each new vehicle and engine manufacturer to a particular agency staff person who is referred to as that

company's certification engineer or certification representative. EPA and CARB staff who work as certification representatives are generally assigned multiple manufacturers.

75. In general, my experience has been that the employees assigned by manufacturers to deal directly with certification handle all of the different types of vehicles being certified by the manufacturer—*e.g.* gasoline, diesel, hybrid. Again, in my experience, the usual practice is for other groups within a manufacturer to direct the data and information required for certification to the certification staff. The certification staff reviews and compiles the information received and uses it to prepare the certification applications. It has been my experience that, within a given manufacturer's certification staff, there may be a limited number of individuals who focus on certain aspects of the certification process such as the OBD system as well as the identification and documentation of adjustable parameters and AECDs.

76. Given the time and effort required to prepare a certification application, most manufacturers meet regularly with their certification representative and other agency staff involved in the certification process (*e.g.* certification representatives for other manufacturers and agency management) to discuss or "preview" their future model-year certification plans. The purpose of these meetings is to describe to the agencies, in some detail, the vehicles or engines the manufacturer plans to certify in order to identify, discuss, and hopefully resolve potential concerns or issues that could arise during the certification process. Given that certification is required to sell vehicles, and the level of time and effort that the certification process requires, manufacturers obviously are concerned with ensuring that unexpected problems do not occur that either slow or



prevent certification. As a result, manufacturers may also ask for agency pre-approval of certification plans or for clarification or explanation of agency positions on certain items.

77. With respect both to “preview” meetings as well as the certification process in general, agency staff and manufacturers frequently have to interpret the emissions regulations in light of the specifics of individual test groups. Some of this interpretation has been documented by the agencies, as I mentioned above, through the issuance of Advisory Circulars (A/C) and “Dear Manufacturer” letters in the case of EPA, and by Manufacturer Advisory Correspondence (MAC) and letters in the case of CARB. However, a substantial amount of such interpretation is not documented. In my experience, EPA and CARB certification staff have become much less focused on issuing written guidance and have chosen instead to rely much more on verbal communications with new vehicle and engine manufacturers. Further, it is possible that at times different regulatory agency staff may have different opinions or positions on certain issues that affect the certification process, which can cause confusion among manufacturers. In these instances, the issues in question can be directed upward through the agency management structure in an effort to develop a consistent agency position, with the highest ranking person usually having the final decision.

78. Certification is required for all vehicles and engines on the model-year basis defined in the regulations, even if there are no changes related to the previous model-year. As a result, most vehicle and engine manufacturers seek approval of their certification applications during the calendar year that precedes the model-year in question, with many applications being submitted during the summer and fall. This and the volume of material in the certification applications that must be reviewed creates

logistical issues both for the agency staff as well as for the manufacturers seeking certification. To put this into perspective, FCA alone certified, based on EPA records,<sup>15</sup> approximately 100 different engine families over the 2014 to 2016 model-years including the three test groups that related to the Subject Vehicles.

79. As a result, until recently, both manufacturers and regulatory agency staff members tended to try to reduce the volume of documentation and related materials required for the certification process. For light-duty vehicles, these efforts included the CAP2000 rulemaking undertaken by EPA<sup>16</sup> and CARB,<sup>17</sup> a main purpose of which was to reduce the level of effort required to initially certify a vehicle in return for a greater focus on in-use emissions performance.

80. As noted above, individual certification representatives are assigned multiple manufacturers and therefore have knowledge of how a range of manufacturers have attempted to address specific issues. To the extent that a given manufacturer uses what the agency staff believe to be a less robust or less effective component, calibration, OBD monitoring strategy, etc., they may criticize that manufacturer and put pressure on the manufacturer to make changes. Given the need to interpret the emissions regulations, the timing of the certification process, and the fact that certification is required to sell vehicles, EPA and CARB staff have a great deal of leverage over manufacturers and can use this leverage to force manufacturers to make changes to their products that may not be strictly dictated by emissions regulations themselves. As Dr. Atkinson points out the

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<sup>15</sup> See “Annual Certification Data for Vehicles, Engines, and Equipment,” EPA, <https://www.epa.gov/compliance-and-fuel-economy-data/annual-certification-data-vehicles-engines-and-equipment>, accessed September 25, 2018. The relevant data is available for 2014-2016 model-years.

<sup>16</sup> See EPA420-F-98-016, June 1998 (summary of EPA’s rule).

<sup>17</sup> See “LEV II and CAP 2000,” CARB, <https://www.arb.ca.gov/regact/levii/levii.htm>., accessed September 25, 2018. Documents are available regarding CARB’s adoption of CAP 2000.

threat to withhold certification of 2016 model-year VW vehicles represents an extreme example of the regulatory agencies using this leverage to influence manufacturers.

[Atkinson Report, at ¶ 399.] In my experience, manufacturers attempt to avoid this type of situation by being careful in their approach to communications with regulatory agency staff.

5. Chrysler's Communications With Its Regulators

81. My review of the materials reviewed by Dr. Atkinson suggests that FCA's interactions with EPA and CARB reflect an attempt by FCA and the agencies to interpret the regulations and define what the agencies expected Chrysler to disclose during the certification process for the Subject Vehicles. These materials suggest that Chrysler relied on an internal understanding of how to identify AECDs for the purpose of the certification process, developed based on interactions with EPA. These materials suggest also that FCA sought to provide regulators with what it believed was the germane information required for certification without overloading the agencies with extraneous information.

a. *Internal AECD Definition*

82. Available evidence in the record shows that, based on the materials reviewed by Dr. Atkinson, Roger Orteca, head of Chrysler's Emissions Certification group during the development of the Subject Vehicles, developed a set of guidelines to identify which calibration features should be disclosed as AECDs.

83. These guidelines or "rules of thumb" were communicated informally between groups at Chrysler and to VM, the entity that I understand had been responsible for the emission calibration of the diesel engines used in the Subject Vehicles. *First*, Chrysler's Certification Group understood that only "nonlinear" strategies or those with

“discontinuities” or “step functions” qualified as potential AECDs. [FCA-PIRNIK-001994115; FCA-PIRNIK-001661066.] *Second*, Chrysler’s Certification Group only regarded strategies that would result in increased tailpipe emissions in normal driving conditions as AECDs. [FCA-PIRNIK-001994115.] *Finally*, Chrysler understood that it was supposed to avoid timer-based functions. [FCA-PIRNIK-001476726.]

84. My review of the materials also indicates that Chrysler presented this internal understanding of the AECD requirements to EPA. On May 14, 2012, Chrysler’s Certification Group presented the “linearity rule” and the “increased emissions rule” to EPA’s Office of Transportation and Air Quality (“OTAQ”) [FCA-PIRNIK-001251617; FCA-PIRNIK-001251618.] In an email before the meeting, Robert Shaw proposed to Morrie Lee and Steve Mazure showing EPA a slide describing Chrysler’s working definition of an AECD, which stated in relevant part that “an AECD is” (i) “[a] feature that has the possibility of increasing emissions under normal operating conditions,” and (ii) that “[o]nly nonlinear changes, i.e., step functions, in parameters were considered potential AECDs.” [FCA-PIRNIK-001251617; FCA-PIRNIK-001251618.] I understand that EPA did not voice objections to these rules, and Mazure and other Chrysler attendees left the meeting with the understanding that the agency approved of their general approach to AECDs. [Mazure Tr., at 143:12–144:21.] In fact, Mazure testified that EPA employees said they did “not want reams and reams of data describing all [FCA’s] calibration” and that they said they wanted only the features that “[n]onlinearity impact emissions.” [Mazure Tr., at 144:13–21.]

85. Beyond presenting the definition to EPA, employees within Chrysler discussed the company’s internal AECD definition. In May 2012, Shaw reached out on

two occasions to Cheryl Stark, including on the morning of the meeting with EPA, to ask whether she agreed with Chrysler's approach to identifying AECDs, including the linearity rule. [FCA-PIRNIK-001476726; FCA-PIRNIK-001252653.] At that point in time, Stark had recently joined Chrysler and was considered within Chrysler to have diesel emissions regulatory experience from her recent work at GM as Engineering Group Manager for Diesel Diagnostics. [Jaffri MDL Tr., at 120:20–122:1.]

86. On May 2, 2012, in response to Shaw's request for input on the Certification Group's AECD definition, Stark wrote to Shaw, copying Orteca, Gerald Kopinski, and Hal Zatorski, that "[t]he distinction of linear vs. non-linear calibration strategies is not something that I recall in discussions of AECDs, although I know this may be based upon varying interpretations at different OEMs." [FCA-PIRNIK-001476726.]

87. And on May 14, 2012, after reviewing the slide with the AECD definition, Stark wrote Shaw, "I think the summary looks ok, except that I have not seen others distinguish between linear and non-linear changes relative to an AECD. It might be that I don't understand exactly what this means . . . [h]as CARB/EPA agreed to this definition, or is it a guideline within Chrysler?" [FCA-PIRNIK-001252653.] Shaw replied that "I'm going to EPA now. May want to show this to them. That is why I was asking." [FCA-PIRNIK-001252653.] Shaw reported back to Stark after the meeting with EPA, confirming that the definition had been presented to EPA. [FCA-PIRNIK-001647107.]

88. Thus, it appears that Chrysler employees applied an internal definition of AECDs that flagged calibration features with a nonlinear impact on emissions as AECDs, rather than every single calibration feature that could impact the emission control system.

Based on my experience, it is not unusual for manufacturers to strive for a balance between meeting disclosure obligations while limiting the provision of extraneous or unnecessary information to regulators. Dr. Atkinson's analysis of the features at issue disregards this evidence of how Chrysler and how the regulatory agencies interpreted the emissions regulations during the relevant time period.

*b. Flow of Information to Regulators*

89. The Chrysler Emissions Certification Group understood that AECDs needed to be disclosed and that defeat devices were not allowed, and had general familiarity with the applicable regulations. [*See, e.g.*, FCA-PIRNIK-001252668; FCA-PIRNIK-001994049; FCA-PIRNIK-001994051; FCA-PIRNIK-001994111; FCA-PIRNIK-001994107; FCA-PIRNIK-001994108.] However, given diesel engine certification by Chrysler was not common and the diesel engine in the Subject Vehicles may have been the first diesel engine that the Chrysler employees involved were attempting to certify, those employees appear to have sought additional guidance concerning the level of detail the regulatory agencies would expect in the certification application.

90. Following a "certification preview" meeting with CARB on December 15, 2011, Mazure wrote to members of the Regulatory Affairs group and to Shaw, "[y]ou heard the great interest in AECD/AECF lists for diesels that need discussion with them next year." [FCA-PIRNIK-001994040.] In summarizing the meeting to Orteca, Beth Borland and others, Shaw wrote in part that "AECD review w/ ARB can take several months," that "ARB wants a full sensor table including any parameter that may effect [*sic*] the effectiveness of the emissions control system," and that "ARB wants schematic and full description of EGR and calibration." [FCA-PIRNIK-001994179.] The next day,

Shaw wrote Zacchi in part that “I expect the Agencies will want to look closely at how we calibrate dosing.” [FCA-PIRNIK-001994083.]

91. Shaw initially “previewed” to CARB in March 2012 a short, draft AECD list in Excel format succinctly listing EGR-related AECD functions. [FCA-PIRNIK-001252784; FCA-PIRNIK-001462778; FCA-PIRNIK-001994111.] Following the meeting with CARB, Shaw reported back to Antonio Baccarini, Orteca, Kopinski, and Zacchi that “[t]he AECD list we prepared is clearly insufficient to CARB.” [FCA-PIRNIK-001994112.] Similarly, EPA also told Chrysler in May 2012 that the short-form disclosure list would not suffice and that the AECD disclosure list would need to be more expansive and detailed. [FCA-PIRNIK-001252653.]

92. Based on my experience, these emails are typical of efforts by manufacturers to understand agency expectations concerning the information to be disclosed in the regulatory approval process. My review of the materials leads me to conclude that Chrysler employees sought clarification on the level of information to be provided to agencies, manifested in particular by the efforts to develop a more detailed AECD list.

#### 6. Certification in the Wake of VW

93. Following the announcement of the VW diesel emissions scandal in September 2015, EPA issued a letter to light-duty vehicle manufacturers<sup>18</sup> informing them that increased oversight during the certification review process would be occurring under the regulations of 40 CFR §86.1809: “EPA may test or require testing on any vehicle at a designated location, using driving cycles and conditions that may reasonably

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<sup>18</sup>See “EPA Conducting Confirmatory Testing; CD-15-24,” EPA, <https://www.epa.gov/sites/production/files/2015-10/documents/cd-mfr-guid-ltr-2015-09-25.pdf>, accessed September 25, 2018.

be expected to be encountered in normal operation and use, for the purposes of investigating a potential defeat device. Such testing can be expected in addition to the standard emissions test cycles when Emissions Data Vehicles (EDV), and Fuel Economy Data Vehicles (FEDV) are tested by EPA.” CARB issued a similar letter, again, in September 2015.<sup>19</sup>

94. Additionally, in the aftermath of the VW diesel emissions scandal, both EPA and CARB began extensive use of the PEMs on-road emission test systems as part of the certification process on selected vehicles. In addition to the use of PEMs testing by both agencies in enforcing the certification process, CARB began to require, as part of the certification process, that manufacturers answer a series of specific questions related to AECDs and defeat devices.

95. Again, in my opinion, these agency responses to the VW scandal fundamentally altered the certification process by increasing the focus and scrutiny placed on AECDs and potential defeat devices. My understanding and experience is that after the VW diesel emissions issue, the amount of information requested from manufacturers during the certification process has increased. The level of detail included in discussions between manufacturers and the regulatory staff related to AECDs and potential defeat devices has also increased.

**C. Agencies’ and Manufacturers’ Standard Approaches to Determining Whether Features are AECDs or Defeat Devices**

96. The following summarizes my experience with respect to how regulatory agency staff approach the evaluation of AECDs that can be approved for purposes of

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<sup>19</sup> See “IUC-2015-008,” CARB, [https://www.arb.ca.gov/newsrel/arb\\_iuc\\_2015\\_09\\_25\\_final\\_signed\\_letter.pdf](https://www.arb.ca.gov/newsrel/arb_iuc_2015_09_25_final_signed_letter.pdf), accessed September 25, 2018.



engine/vehicle performance, emissions compliance, vehicle safety, and fuel economy. I would also note that the process is often iterative in nature with discussions between “calibrators,” emissions staff (sometimes external experts), and regulatory staff.

97. The first step is the creation of a table of sensed versus controlled parameters which is used to identify possible AECDs in a vehicle and to ensure the calibration features that do not end up in the AECD documentation are disclosed elsewhere in the certification application.

98. In addition, there would be the development of a written description for each AECD, which would discuss and document at least the following with respect to each AECD:

- Purpose;
- Function;
- Input (sensed) and Output (controlled) parameters used in AECD operation;
- Any entry and exit or “enablement” conditions related to AECD operation;
- Expected frequency of operation of the AECD during in-use driving;
- Impacts of AECD operation on emissions;
- Justification of why each AECD is necessary; and
- Interactions of the AECD with other calibration features and AECDs.

99. Typical AECDs include those that may be used during engine start-up and warm-up of the engine, overheating protection, protection from loss of oil pressure protection, operation accelerations, and turbocharger protection at altitude. Such AECDs are generally in widespread use or that have been previously approved by the agencies as part of the certification of prior model-years. Other AECDs would be the subject of greater attention. Here, I would expect that the interactions between calibrators and

certification staff within the manufacturer organization, as well as between the certification staff and the regulatory agencies, to be much more extensive. Within the manufacturer organization, I would expect potentially extensive discussions between, on the one hand, those working on different aspects of the development of the engine, emission control system operation, and emission control calibration, and, on the other hand, the certification staff that would be responsible for determining how to describe the AECD in the certification application. In addition, with respect to communications with the regulatory agencies, phone calls or meetings involving both certification and technical staff could be required to discuss an AECD during the certification process.

100. The interactions both within the manufacturer organization and between the certification staff and the regulatory agencies related to “non-standard” AECDs often require additional supporting information to establish if they are “necessary.” In some cases these discussions require the manufacturer organization demonstrate that these “non-standard” features should not be viewed as defeat devices by the regulatory agencies. This type of additional supporting information can include:

- Test data showing operation of the AECD during Federal Test Procedures;
- Details supporting that the AECD is necessary due to physical/chemical realities of the operation of the engine and/or vehicle;
- Documentation of AECD operating frequency under in-use conditions that demonstrates that the operation of the AECD is limited to unusual or extreme conditions; and/or
- Documentation of the emissions impacts of AECD operation.

101. As I outline above, based on my experience, the certification process as it relates to AECDs depends on a number of issues that relate to the details of the AECD in light of the tensions that arise in vehicle and emissions control system development,

operation and control due to the need to achieve the multiple goals of engine/vehicle performance, emissions compliance, safety, and fuel economy. Even within these areas there may be multiple performance related goals dealing with power, durability, noise, and vibration.

102. In addition, certifications that involve new or relatively unique technologies unfamiliar to both those within the manufacturer organization and at the regulatory agencies often complicates and lengthens the AECD review and approval process.

103. Ultimately, it is the manufacturer's regulatory agency certification representative and perhaps other regulatory agency staff that determines what calibration features are AECDs and who are responsible for approving AECDs. In some cases, the regulatory agencies may ask for changes in the way an AECD operates as a condition for approval. It should also be recalled that the AECD approval process is subject to the same time pressures that apply to the whole certification process and regulatory agency staff can use the leverage provided by the manufacturer's need to obtain a CoC or EO to sell the vehicles to get manufacturers to make changes to AECDs, even if the manufacturer does not believe that those changes are necessary.

104. There are three primary approaches that could be used, typically in conjunction, to evaluate the operation of these calibration features to determine if they individually or in combination constitute an AECD or defeat device.

105. The first would be to perform a detailed review of the documentation regarding the complete function and operation of the calibration features of the Subject Vehicles and identify specific features that appear to be AECDs or defeat devices. The

approach would involve a review of the type of information that is typically submitted during the certification process, as discussed above.

106. The second, related approach, would be to directly review the code associated with calibrations of the Subject Vehicles and identify specific code sections that represent calibration features that appear to be AECDs or defeat devices like the “acoustic function” that Dr. Atkinson discusses in relation to the VW defeat devices. [Atkinson Report, at ¶ 99.]

107. The third approach involves operation of the vehicle while monitoring both emissions and the detailed operation of the emission control system (which in this case would include the function of the EGR system, exhaust temperatures, DEF dosing rates, and SCR catalyst conversion efficiencies) in light of the suspected function of the calibration features. This analysis would be undertaken to confirm that the function does in fact operate in the manner suspected, and to determine whether the function operates on the Federal Test Procedures or meets the other criteria for exemption.

## **VI. ISSUES WITH DR. ATKINSON’S QUALIFICATIONS AND ANALYTICAL APPROACH**

108. I have reviewed the materials that Dr. Atkinson references in his report as the basis of his opinions, as well as his report. These materials, which span a period of several years, generally consist of a selection of emails and deposition testimony, presentations, documents related to the certification of the Subject Vehicles, as well as EPA and CARB documents.

109. There is no discussion in Dr. Atkinson’s report showing that he possesses the knowledge and experience with emissions regulations and the certification process that would be necessary to support the conclusions he reaches in his report.

110. There is also no discussion in the report reflecting that Dr. Atkinson performed his own independent scientific/engineering analysis of the issues associated with the Subject Vehicles, including any review of the calibrations, evaluation of emissions data, or review of documentation containing a complete account of how the calibration features at issue operate in the Subject Vehicles.

111. It is my opinion that Dr. Atkinson has not followed any recognized scientific methodology or performed the normal scientific/engineering analysis required in cases like this to develop a sound and reliable basis for his conclusions. Instead, he largely adopts the opinions and purported opinions of others, which in my opinion are often flawed, unreliable, and not an appropriate substitute for an independent scientific/engineering analysis.

**A. Dr. Atkinson's Lack of Experience with the Regulatory Agencies and the Certification Process**

112. The Background and Qualifications section of Dr. Atkinson's report indicates that he has divided his career between academia, engine powertrain control and calibration, conducting related research, and development and commercialization projects on behalf of government agencies and automotive companies. [Atkinson Report, at ¶ 1.] Dr. Atkinson makes no mention of ever having worked for either EPA or CARB, or of his ever having had any involvement in the area of new vehicle and engine certification, direct involvement in the certification process, or professional interactions with the staff of the regulatory agencies involved in new vehicle or engine certification.

113. The Professional Background section of Dr. Atkinson's Curriculum Vitae indicates that his professional positions to date either have been with academic institutions, private companies focused on the develop of innovative engine control

systems, or with the federal government overseeing a program focused on research and development of innovative energy technologies. [Atkinson Report, at Exhibit 1.] He does not appear to have directly worked for a new vehicle or engine manufacturer or either of the regulatory agencies involved in new vehicle or engine certification.

114. The Professional Achievements section of Dr. Atkinson's Curriculum Vitae makes it clear that Dr. Atkinson has experience with the development of diesel engine control and calibration methodologies. But his experience appears to lie, primarily, if not exclusively, in the heavy-duty diesel engine sector as differentiated from the light-duty vehicle sector to which the Subject Vehicles belong. Although Dr. Atkinson has worked for heavy-duty diesel engine manufacturers on engine and emission control system control and calibration, there is nothing in this section that suggests that he has ever been directly involved in the certification process or had any professional interactions with staff at either of the regulatory agencies that are directly responsible for new vehicle or engine certification.

115. A review of the remaining sections of Dr. Atkinson's Curriculum Vitae (Honors and Awards, Patents and Patent Applications, Recent Technical Presentations, Recent Invited Corporate Presentations, Recent Review Activities, Academic Accomplishments, Relevant Energy Course Development, and Journal Publications) also demonstrates Dr. Atkinson's experience related to research on advanced engines, development of engine control and calibration methods, engine modeling, emissions testing, and other areas, again primarily but not exclusively, focused on heavy-duty diesel engines.

116. The one reference to an emissions control regulation in Dr. Atkinson's CV is to the EPA Phase 2 Medium and Heavy Duty Engine Regulations, which he apparently reviewed in some capacity in 2015. Based on the history of the development of this regulation available on EPA's website,<sup>20</sup> it appears that Dr. Atkinson's review would have been related to the proposed regulation and not the final version of the regulation that was published in August of 2016. While the scope of Dr. Atkinson's review is not clear, it is highly unlikely that it was related to new engine or vehicle certification.

117. Overall, Dr. Atkinson has not demonstrated experience related to the new vehicle and engine certification process other than apparently reading some or all of the emissions regulations applicable in this case. This lack of experience is reflected in his report and in the opinions he puts forward.

118. As discussed in more detail below, Dr. Atkinson's lack of experience with the certification process and in dealing with the emission regulations and the staff of the regulatory agencies involved in certification is evident throughout this report. For example, Dr. Atkinson appears to take the position throughout his report that both the EGR and SCR systems of the Subject Vehicles should have been designed to achieve the maximum possible reduction in NOx emissions at all times. Unfortunately, this position fails to recognize the challenges faced by those involved in vehicle calibration related to simultaneously balancing the need to control NOx emission along with emissions of other pollutants such as hydrocarbons, particulate matter and carbon dioxide, while also ensuring the proper operation and durability of the engine and its emission control system. The regulations neither require nor expect manufacturers to be able to achieve

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<sup>20</sup>“Final Rule for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and heavy-duty Engines and Vehicles – Phase 2,” EPA, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-greenhouse-gas-emissions-and-fuel-efficiency>, accessed September 25, 2018.

the maximum possible reduction of NOx emissions at all times, as Dr. Atkinson seems to assume.

119. Further underscoring Dr. Atkinson's lack of experience with certification issues, he uses the term "Certificates of Compliance" throughout his report, rather than the correct term, "Certificates of Conformity." [Atkinson Report, at ¶¶ 70, 94, 123, 133, 141, 317, 332.] He also conflates the certification standard applied to the Subject Vehicles. In ¶ 90, Dr. Atkinson writes, "[t]he diesel engine versions of the Subject Vehicles . . . appear to have been certified by FCA to the Tier 2 Bin 4 emissions levels." [Atkinson Report, at ¶¶ 90, 91.] In doing so, he applies the wrong standard because the Subject Vehicles were certified to Tier 2 Bin 5. [Certificate Summary Information, ECRXT03.05PV; FCRXT03.05PV; and GCRXT03.05PV.] That the Subject Vehicles were certified to Tier 2 Bin 5 rather than Tier 2 Bin 4 is clear from the Certification Summary Information Reports, which are publicly available documents on EPA's website.<sup>21</sup>

120. In addition, Dr. Atkinson repeatedly argues that the features at issue here are defeat devices because they purportedly cause FCA's vehicles to emit NOx at "illegally" high levels. [E.g., Atkinson Report, at ¶¶ 100, 182, 221, 257, 321, 338.] These arguments reflect a lack of knowledge of the fact that, as discussed above, the emissions regulations do not provide standards for on-road operation of in-use vehicles. In other words, there is no such thing as "illegally high levels" of NOx emissions in "real world" vehicle driving. The mere fact that measured emissions are high during real world driving does not prove that a vehicle is equipped with one or more defeat devices.

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<sup>21</sup>See "Search—EPA's Transportation and Air Quality Document Index System (DIS)," EPA, <https://iaspub.epa.gov/otaqpub/pubsearch.jsp>, accessed September 25, 2018. Choose "Certificates of Conformity" under "Compliance Document Type" to search for the Certification Information Reports.



And even where a feature is found to reduce the effectiveness of the emission control system, it would have to do so under conditions which may reasonably be expected to be encountered in normal vehicle operation and use before it can be deemed a defeat device. And even then, it would have to be shown that none of the relevant regulatory exceptions apply (*e.g.*, the conditions are substantially included in the federal emissions test procedure; the need for the feature is justified in terms of protecting the vehicle against damage or accident; the feature does not go beyond the requirements of engine starting) before one could reach a conclusion that the feature is a defeat device.

121. I would also note again that during the certification process, the staff of the regulatory agencies would make judgments as to whether calibration features are AECDs and if they are AECDs if they are approvable or if they constitute defeat devices. In my experience, results of that determination could vary depending on the agency as well as which agency staff members are involved. In claiming that the relevant features are AECDs or defeat devices, and in opining that they contain features that a regulator would find relevant, Dr. Atkinson ignores evidence of how the relevant regulators and Chrysler viewed such features during the relevant time period.

122. Dr. Atkinson's lack of expertise is also evident in his conclusion, repeated throughout his report, that a feature is a defeat device if it performs differently during the Federal Test Procedures than it does on the road in normal driving conditions. [*E.g.*, Atkinson Report, at ¶ 100, 119, 183, 222, 261.] The emissions regulations do not prohibit calibration features that perform differently in the real world than they do during the Federal Test Procedures. Indeed, some calibration features are expected to perform differently in real world conditions than in federal test conditions, to the extent such

conditions differ from those found on the Federal Test Procedures. The mere fact such a difference exists does not render that feature a defeat device, as Dr. Atkinson seems to argue. That this is in fact the case is evidenced by the exemptions allowed in the regulation as well as practical considerations that have to be considered by manufacturers and the regulatory agencies during the certification process. Rather, there are many additional steps in the analysis that are required before concluding that any calibration feature is a defeat device.

**B. Failure to Independently Evaluate the Calibration Features of the Subject Vehicles**

123. As is discussed at length in his report, it is Dr. Atkinson's opinion that the following calibration features of the Subject Vehicles are "defeat devices:"

- T\_Engine;
- Vehicle Speed Corrections;
- Valvetrain Cleaning Routine / EGR #12;
- Online Dosing;
- SCR Catalyst Warm-Up Disablement;
- Adaptation; and
- The Load Governor.

124. However, as I describe in this section Dr. Atkinson has failed to perform a proper and independent scientific/engineering analysis that supports his opinions, and in my opinion, he fails to reasonably demonstrate that any of the above calibration features are in fact AECDs or defeat devices.

125. As I have outline previously in ¶ 108, there are three primary approaches that could be used to evaluate the operation of calibration features to determine if they

individually or in combination constitute a AECDs or defeat devices: (1) review documentation regarding the calibration and its features to demonstrate their complete function and impacts; (2) to directly review the code associated with the calibrations of the Subject Vehicles; or (3) to monitor emissions and characterize engine and control system operation while the vehicle is being driven.

126. Dr. Atkinson has not only not attempted to perform an independent scientific/engineering analysis using any of the three approaches described above, he has not even documented and characterized the calibration features at issue at the most basic level based on the materials he chooses to rely on as one would do to evaluate AECDs during the early stages of the certification process. For example, he has failed to provide a table that indicates what he believes, based on his review of the materials, are the “sensed” parameters that are inputs for the operation of each calibration feature or the controlled parameters that are the “output” of the supposed AECD. In addition, he has failed to provide even a description of each calibration feature that includes his understanding and opinions regarding the following aspects of each feature:

- Purpose;
- Function;
- Input (sensed) and Output (controlled) parameters used in AECD operation;
- Any entry and exit or “enablement” conditions related to AECD operation;
- Expected frequency of operation of the AECD during in-use driving;
- Impacts of AECD operation on emissions;
- Justification of why each AECD is necessary; and
- Interactions of the AECD with other calibration features and AECDs.

127. Technical descriptions of the relevant calibration features as they relate to the Subject Vehicles can be found in FCA's Section 208 responses to the EPA.

However, Dr. Atkinson does not appear to have reviewed these descriptions or relied on them in coming to his conclusions related to the existence of undisclosed AECDs or defeat devices. [See FCA's Consolidated Responses to EPA 208 Information Request, dated April 21, 2017 (FCA-PIRNIK-001735197).]

128. In addition, although it would have been time consuming to analyze the calibration code or to conduct emissions testing according to the second and third approaches I have discussed above, Dr. Atkinson's qualifications include experience related to vehicle and engine emissions testing and diesel engine calibration, and it appears possible that he would have known how to perform these analyses had he elected to do so.

129. By failing to use any of the above approaches to perform an independent scientific/engineering analysis of the operation of the calibration features at issue in the Subject Vehicles, Dr. Atkinson provides no reliable basis for his opinions. As a result, he is therefore forced instead to rely on the comments, statements, and opinions of others, as I discuss below.

**C. Instead of Performing His Own Independent Scientific/Engineering Analysis, Dr. Atkinson Inappropriately Relies on the Purported Opinions of Others**

130. Instead of performing his own independent scientific/engineering analysis of the features of the Subject Vehicles at issue, Dr. Atkinson often merely adopts the apparent conclusions of others as his own.

1. Reliance on the Opinions of Others, Including EPA and CARB  
NOVs Instead of His Own Analysis

131. Dr. Atkinson's discussion of EPA and CARB's positions does nothing more than present their purported conclusions. Further, he mischaracterizes the agencies' positions. Dr. Atkinson relies on the fact that EPA and CARB issued notices of violation ("NOVs") to inappropriately conclude that "FCA violated emissions regulations." [Atkinson Report, at ¶ 100.] He repeatedly quotes the EPA NOV as stating "To date, despite having the opportunity to do so, FCA has failed to establish that these are not defeat devices," and, "To date, despite having the opportunity to do so, FCA has failed to demonstrate that FCA did not know, or should not have known, that a principal effect of one or more of these AECDs was to bypass, defeat, or render inoperative one or more elements of design installed to comply with the emissions standards under the CAA." [See e.g., Atkinson Report, at ¶¶ 151–153, 178–179, 217–218, 269–270, 275, 281–282, 314–315, 326, 329–330, 339–341, 352–354.] He relies on these quotes as support for his opinions that all of the following are "defeat devices":

- T\_Engine;
- Vehicle Speed Corrections;
- Valvetrain Cleaning Routine / EGR #12;
- Online Dosing;
- SCR Catalyst Warm-Up Disablement;
- Adaptation; and
- Load Governor.

132. However, in my opinion, Dr. Atkinson's use of the above language to conclude that EPA statements support his conclusion that *all* of the above are defeat

devices is over-reaching because the EPA never concluded that there were any defeat devices in FCA vehicles. In fact, EPA clearly states in its NOV that “*one or more*,” not “*all*” “*may be defeat devices*.” (emphasis added.) Dr. Atkinson further cites a number of discussions between EPA and FCA staff, but these also do not support his proposition that *all* of the above features are conclusively defeat devices. [See Atkinson Report, at ¶ 347, 358, 361, 371.]

133. In summary, despite the obvious concerns expressed by the regulatory agencies, there are to the best of my knowledge no statements or other assertions made by EPA or CARB that support Dr. Atkinson’s claims that all eight of the calibration features he discusses have been conclusively determined to be defeat devices.

134. Dr. Atkinson further relies on EPA and CARB NOVs to support his conclusion that “[t]he Subject Vehicles Emitted Higher Levels of NO<sub>x</sub> during Real-World Operation than during Regulatory Testing,” [Atkinson Report, at ¶¶ 338, 240], although he also admits that “...neither EPA nor CARB have publicly released the results from their testing of the Subject Vehicles...” [Atkinson Report, at ¶ 341.] Again, I find Dr. Atkinson’s claims to be unreliable, as in my opinion, no expert can properly form any opinion regarding the meaning of vehicle emissions data that they have never seen, nor can an expert properly form an opinion without having a good understanding of the test vehicles, test procedures, and test conditions that were used, regardless of what regulatory agency or testing laboratory may have performed the testing.

## 2. Reliance on West Virginia University Testing

135. Another means by which Dr. Atkinson attempts to support his opinions and conclusions is through a study that he refers to as “West Virginia University Testing,” which he states: “found that emissions from 5 Subject Vehicles varied

significantly between the laboratory and on-road environments.” [Atkinson Report, at ¶ 396.] He also uses analogies to similar testing performed by West Virginia University on Volkswagen vehicles to infer that the results of the testing of the Subject Vehicles proves that the vehicles are not in compliance with emissions regulations. [Atkinson Report, at ¶ 398.]

136. I have reviewed the West Virginia Report cited by Dr. Atkinson and do not agree that it proves that the Subject Vehicles are not in compliance with emissions regulations. It is my opinion that it is not at all surprising, based on the testing that was performed by West Virginia University, that the observed emissions from the small sample of Subject Vehicles tested were higher than the applicable FTP-75 emission standards.

137. For example, the vehicles were not driven over the FTP-75 driving cycle but rather over cycles that were generally more aggressive and representative of the US06 driving cycle. In addition, it is not noted in the study if the air conditioning was turned on, which is not how the FTP-75 test procedure is performed but rather is the focus of the SC03 test procedure. Also, the vehicles were not driven on flat roads or with the same load (for example, the PEMS unit used on-road added approximately 700 pounds to the weight of the vehicle) that would be used in laboratory testing using the FTP-75 test procedure.

138. All of these factors would be expected to lead to higher emissions than observed on the FTP-75 test performed under laboratory conditions, regardless of the presence of any defeat device. That this is the case can be clearly seen in Section 2 of the West Virginia University Report cited by Dr. Atkinson, which shows the higher standards

that applied to the Subject Vehicles for the US06 and SC03 test procedures during the certification process as well as the Supplemental Federal Test Procedure standards that apply to the Subject Vehicles in-use.

139. Moreover, it should again be noted that the on-road testing in the West Virginia Report does not relate in any meaningful way to the Federal Test Procedures and that there are no emission standards that apply to on-road operation. As a result, the West Virginia Report is not an appropriate basis for assessing whether the Subject Vehicles comply with the emissions regulations, whether there are undisclosed AECDs, or whether there are defeat devices.

140. Another issue with the West Virginia Report is that it involved only the measurement of emissions and did not collect or analyze data related to the operation and control of the emission control system, which would be required to identify and characterize the function of the calibration features at issue. As I noted above, this data in combination with emissions data is required to properly evaluate the operation and potential emissions impact of any particular calibration feature. Further, as I note above, even if there is an emissions impact, the purpose of and need for the calibration feature would also have to be evaluated.

141. In summary, the West Virginia Report, in my opinion, does not demonstrate whether the Subject Vehicles tested were in compliance with emissions regulations and does not address the operation or emissions impacts of the specific calibration features of the Subject Vehicles that are at issue. Given this, it does not support Dr. Atkinson's opinions regarding the presence of AECDs or defeat devices.



3. Reliance on Testing Described in Bosch Documents

142. Dr. Atkinson also discusses in-use NOx emissions results from a July 3, 2014 Bosch presentation. [Atkinson Report, at ¶ 342–345.] These results were apparently collected from the in-use operation of a small set of Subject Vehicles over an unspecified driving cycle. From here, Dr. Atkinson infers that this data implies that the Subject Vehicles are not in compliance with emission requirements because the NOx emission rates appear to be above the FTP-75 standard. Again, it is not surprising that testing of the Subject Vehicles under in-use conditions differs from testing associated with the FTP-75 results in observed NOx emissions above the FTP-75 standard level. Also again, in my opinion, this in no way demonstrates that the vehicles tested were not in compliance with the emissions regulations.

143. Again, as Dr. Atkinson repeatedly misunderstands in his analysis, there are no emission standards that apply to the Subject Vehicles when they are being driven on the road that can be used to determine if the vehicles comply with the emissions regulations. Further, the data and testing discussed above provide no basis for Dr. Atkinson's opinions that there are undisclosed AECDs or defeat devices in the Subject Vehicles or that the Subject Vehicles are in non-compliance.

144. In fact, Dr. Atkinson indicates in ¶ 87 of his report that he has no opinion as to whether the Subject Vehicles were in compliance with EPA and CARB emission standards.

4. Reliance on Selective Quotes from Email and Deposition Testimony

145. In his report, Dr. Atkinson frequently claims support for his conclusions that the calibration features identified above are AECDs or defeat devices from email

messages sent at various points in time before and during the development of the calibrations of the Subject Vehicles and from deposition testimony by various people who were involved in that process. These include email messages and testimony from Michael Berry, Kasser Jaffri, and Emanuele Palma among others.

146. Here, again, Dr. Atkinson for the most part does nothing more than recite the purported opinions of others without providing analysis of his own. Dr. Atkinson makes no showing that the individuals involved had any knowledge of how the regulatory agencies, or even Chrysler itself at times, assessed AECDs or defeat devices. Given this, there is no merit to Dr. Atkinson's assertions that they either support or are proof that his opinions are correct. That this is in fact the case can be seen from the following excerpts of deposition testimony.

147. Beginning with Berry's testimony, which is provided below, Berry testifies that his responsibilities did not include determining whether calibration features were AECDs much less defeat devices as evidenced by the following question and response. [*See, e.g., Berry Tr., at 68:4–7.*]

148. Similarly, despite Dr. Atkinson's claims that Berry's statements prove that the T\_Engine calibration feature was a defeat device, Berry's deposition testimony makes it clear that while he expressed concerns he lacked an adequate foundation.

149.

Q. In the course of your employment, were you ever called upon to evaluate whether or not a particular function may be an AECD?

A. No.

[Berry Tr., at 68:4–7.]

\* \* \*

Q. Do you continue to believe it to be an emissions cycle detection?

A. So this is tough, because I'm not the expert on AECDs or detection of cycles or anything like that, so ever since the beginning of this thing to me it has been a gray zone. It has never been a clear-cut it's detected cycle, it is using alternates maps, it is doing something completely different. This is more on the scale of it is running all the time. It is running in the street. It is running when I start the car at my house. It is running in emission cells. It is running all the time. So to me it was a gray zone, and I could never really put my finger on is it or is it not, but, based on the presentations I had seen, I was piecing this thing together.

[Berry Tr., at 104:22–105:18.]

\* \* \*

Q. Were you responsible for deciding whether T\_Eng was an AECD or a defeat device?

A. No.

Q. Were you responsible for deciding whether the vehicle speed correction strategy was an AECD or a defeat device?

A. No.

\* \* \*

[Berry Tr., at 222:8–15; *see also id.*, at 71:20–24, 192:2–3, 223:9–14.]

150. Similarly, Jaffri's testimony makes it clear that he, like Berry, lacked an adequate basis for concluding that any calibration features of the Subject Vehicles were defeat devices:

Q. What's a defeat device?

A. So, you know, so I'm not an expert in -- you know, everything I've learned is this is my own -- from my own kind of self-education, but, you know, the defeat devices are like AECDs, but are AECDs that are not used properly, based on definition of what you can use an AECD for.

[Jaffri MDL Tr., at 49:25–50:8.]

\* \* \*

Q. So the defeat device definition, you reviewed this at the time; right?

A. Yes.

Q. And did you understand it?

A. I wouldn't say I fully understood it, no.

[Jaffri MDL Tr., at 95:11–15.]

\* \* \*

Q. Sitting here today, do you think it's not adequate?

A. I did flip-flop on it and in both instances I always came back like to the original, you know, kind of like where I'm at with OBD, more is better as far as disclosure. But I didn't have a relationship with AECDs and the AECD reviewers at EPA. I didn't know what the industry standard is for detail level. I was just basing – basing this on like an OBD perspective, what I was used to doing. So, you know, from that perspective, I didn't think it was enough, but I don't know what was -- between emissions and emissions guys at EPA or ARB, what was acceptable.

A. I don't know what, like at that time how, you know, what was required in terms of AECDs, because I, you know, had never worked with any of the staff on the agency side to what they would want. So my -- my comments come from an OBD perspective, and we always wanted to put more detail, so I would say more would be better, like including all the features behind it, including on-line dosing.

[Jaffri MDL Tr., at 161:23–162:24.]

\* \* \*

Q. So in your first paragraph, are you suggesting that Chrysler or FCA needs to revise the AECD?

A. This is coming from our group, Hal and I, OBD. We're giving them our suggestions. It's not our responsibility. Just kind of closing a loop on this again to them. This is what we suggest to do. We don't know what the procedures -- what the agreements are, the practice. Not knowing that, just this is our perspective. This is what we think.

[Jaffri MDL Tr., at 210:3–12.]

\* \* \*

[*See also* Jaffri MDL Tr., at 55; 95–96, 348.]

151. Similarly, Palma's testimony clearly indicates that he also lacked a firm basis for concluding that any of the calibration features of the Subject Vehicles were defeat devices:

Q. As part of -- as part of your responsibilities with the programing of the subject vehicles, would you have to or have someone in VM

Motori have to determine whether something constituted an AECD?

A. No, that wasn't part of what VM Motori would determine.

Q. So VM Motori never used the term AECD?

A. That is not what I said. What I said is that it wasn't in VM Motori's realm of responsibilities to determine what is and what is not an AECD.

[Palma Tr., at 31:14–25.]

\* \* \*

Q. What was your understanding [of what an AECD is] when developing the subject vehicles?

A. It wasn't really my responsibility to work on AECDs. I didn't have a true definition that today I can say this is what I thought an AECD was.

[Palma Tr., at 32:22–33:1.]

\* \* \*

Q. Did you have a concern that the EPA would find the tEngine to be improper?

A. I really did not know what the EPA could think, could be considered improper. My view was we need to review this strategy and all other strategies with Roger Orteca. I consider his feedback as the, you know, the approval and the -- given his experience, and his background in what is considered acceptable.

Q. Do you have an understanding of the phrase, term defeat device?

A. I do have an understanding.

Q. And that's a term you understand that's used in EPA regulations?

A. I understand that now. I didn't have a true definition of what a defeat device is back in 2012 to 2014.

[*Id.*, at 48:4–19.]

5. Dr. Atkinson Often Can Offer Only Speculative Opinions Because He Fails to Conduct the Analysis Necessary to Reach Reliable Conclusions

152. Because Dr. Atkinson fails to conduct the thorough scientific/engineering analysis that would be necessary to reliably conclude that any of these features is a AECDs or a defeat device, Dr. Atkinson frequently couches his conclusions in speculative language. In particular, because Dr. Atkinson did not himself review the actual calibrations, emissions data or operation data from the Subject Vehicles, or the on-road performance of the Subject Vehicles, he frequently bases his opinions on how he believes a feature may have or could have been calibrated, rather than upon how the feature *actually was* calibrated in the Subject Vehicles.

153. For example, in his assessment of T\_Engine, Dr. Atkinson writes that the calibration feature “is a method of detecting when the vehicle is on an emissions test cycle . . . and a method of thereby *potentially* reducing the emissions controls in all other situations (i.e. real-world driving).” [Atkinson Report, at ¶ 102 (emphasis added).] He does not assess which emissions controls are reduced in off-cycle conditions, nor does he explain how. Elsewhere in his analysis of T\_Engine, Dr. Atkinson states, “[t]hese alternative maps or strategies *could* output control and calibrations responses that are quite different to those outputs that would be derived or produced if the actual measured engine coolant temperature was used, as is the norm.” [Atkinson Report, at ¶ 119 (emphasis added).] He attempts to use this assessment of how T\_Engine operates to state how “T\_Engine causes alternative engine . . . outputs to occur if the engine or vehicle was tested on a regulatory cycle,” but at no point does Dr. Atkinson provide details on the supposedly different calibration responses. [Atkinson Report, at ¶ 119.] Later on his report, Dr. Atkinson writes, “[t]he operation of AECD # 1, AECD # 2, and/or AECD # 5

may increase the frequency of occurrence of AECD # 4.” [Atkinson Report, at ¶ 336 (emphasis added).] Dr. Atkinson’s frequent resort to speculative language reflects the uncertainty inherent in his methodology.

**D. Dr. Atkinson’s Inappropriate Inferences**

154. Dr. Atkinson also attempts to base his conclusions on inferences from the materials he reviewed in an effort to demonstrate that the features at issues are either AECDs or defeat devices. The inferences Dr. Atkinson attempts to draw from such evidence are frequently flawed and, in any event, do not reflect a scientific/engineering analysis; nor do they provide any support for his opinions.

1. Commentary on Orteca

155. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

156. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

157. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

158. Similarly, Dr. Atkinson also tries to use insinuations regarding Orteca's retirement to support his position. For example, he states, "I have been informed that Mr. Orteca left FCA in January 2016 immediately following the EPA identifying undisclosed AECDs and defeat devices and that Mr. Orteca's emails were destroyed within days of his departure." [Atkinson Report, at ¶ 271.] Although Dr. Atkinson's statement infers that that was somehow inappropriate, he provides no evidence that this is not a normal practice. Again, this issue has no relevance with respect to Dr. Atkinson's opinions regarding AECDs and defeat devices and the Subject Vehicles.

2. Mischaracterization of "Stated Policies for Disclosure"

159. Dr. Atkinson asserts that the non-disclosure of each of the strategies at issue occurred "in violation of FCA's own stated policies for disclosure." [Atkinson Report, at ¶ 219.] He cites to a September 2015 email from Morrie Lee to Joel Dalton of EPA in which Morrie Lee asked for feedback on AECD guidance that FCA was developing for internal use. [Atkinson Report, at ¶ 146 (citing FCA-PIRNIK-001622311).] Dr. Atkinson provides no context for this email, nor does he explain how he concluded that it constituted FCA's internal policy either at the time of the email or at the time of certification of the Subject Vehicles. He does not acknowledge that Morrie Lee sent this email after the Volkswagen scandal became public, and after the certification of each model year of the Subject Vehicles. Dr. Atkinson fails to appreciate



how the Volkswagen scandal impacted the vehicle certification process and the focus and scrutiny that was then directed to AECD and defeat device issues.

3. Citation to Emails About Vehicles Other Than the Subject Vehicles

160. Dr. Atkinson relies on information and conclusions related to vehicles that are not the subject of his inquiry or this litigation in coming to his conclusions.

Information regarding the emissions compliance of vehicles other than the Subject Vehicles does not support Dr. Atkinson's opinions with respect to the Subject Vehicles.

For example, he references information related to the RAM ProMaster multiple times throughout his report. [Atkinson Report, at ¶¶ 248, 249, 252, 253, 351, 390.]

Dr. Atkinson even admits that the RAM ProMaster is "not one of the Subject Vehicles," before undertaking an analysis of ProMaster-related correspondence concerning engine strategies allegedly used by the vehicle. [Atkinson Report, at ¶ 248.] Relying on irrelevant information related to vehicles that are not part of his inquiry fails to support Dr. Atkinson's conclusions and calls his methodology into question.

**VII. SPECIFIC RESPONSES TO DR. ATKINSON'S OPINIONS RELATED TO DEFEAT DEVICES**

161. Dr. Atkinson concludes that a number of calibration features of the Subject Vehicles constitute defeat devices. However, as I document below, Dr. Atkinson's opinions are not actually supported by the evidence he provides in his report. The specific calibration features that Dr. Atkinson claims to be defeat devices are:

- T\_Engine;
- Vehicle Speed Corrections;
- Valvetrain Cleaning Routine / EGR #12;

- Online Dosing;
- SCR Catalyst Warm-Up Disablement;
- Adaptation; and
- Load Governor.

162. I discuss below why, in my opinion, Dr. Atkinson fails to prove his allegations regarding each of these calibration features.

**A. T\_Engine**

163. Dr. Atkinson's opinions and their bases related to T\_Engine are presented in ¶¶ 101 through 154 of his report.

164. Dr. Atkinson does not provide any thorough description of the function of the T\_Engine calibration feature as it was actually implemented in the Subject Vehicles. Accordingly, without any complete explanation of how the feature works, Dr. Atkinson has provided no adequate basis to conclude that T\_Engine is an AECD or a defeat device. Moreover, it does not appear that Dr. Atkinson has done any technical review or performed any technical analysis of T\_Engine. Rather, his conclusions appear to be based solely on selected excerpts of EPA filings and emails rather than any discernable methodology.

165. I can find nothing in Dr. Atkinson's descriptions of the operation of the T\_Engine calibration feature that demonstrates that it operates only when the Subject Vehicles are being tested over the regulatory cycles, or that it does not operate in the same manner during "real-world" operation. Given this, it is my opinion that Dr. Atkinson has failed to establish that T\_Engine is a defeat device.

166. Dr. Atkinson describes T\_Engine as a "method of detecting when a vehicle is on an emissions test cycle ('cycle detection') and a method of thereby

potentially reducing the emissions controls in all other situations (i.e. real-world driving).” [Atkinson Report, at ¶ 102.] He also asserts that T\_Engine causes “the engine to behave differently under regulatory emissions testing conditions than in the real world – in order to increase fuel economy (at the expense of increase NOx emissions) under real-world driving conditions.” [Atkinson Report, at ¶ 103.]

167. To support this description and in lieu of an actual review of the T\_Engine calibrations or emissions data for the Subject Vehicles, or any observation of how T\_Engine performs in the Subject Vehicles, Dr. Atkinson relies on descriptions of T\_Engine as used in European vehicles created years before T\_Engine was included in the calibrations of the Subject Vehicles. In particular, Dr. Atkinson emphasizes an April 2010 presentation that stated, “[t]he function EngDa\_Teng . . . can be used for emission cycle detection.” [Atkinson Report, at ¶¶ 104, 106, 108, 110 (citing FCA-PIRNIK-001415716).]

168. Based on this presentation, Dr. Atkinson states that T\_Engine was included in the calibration of the Subject Vehicles “to increase the ‘engine out’ NOx in order to increase fuel economy” [Atkinson Report, at ¶ 113.] In making this statement, Dr. Atkinson does not consider that the label fuel economy ratings of new vehicles are based on data including measurements on the HWFET cycle, not based on in-use driving. As I noted above, there is a NOx emissions standard that applies to the HWFET; therefore, any strategy designed to meet a fuel economy goal also would have to allow the Subject Vehicles to meet the emissions standards of the HWFET.

169. What I can surmise based on Dr. Atkinson’s discussion of T\_Engine is that he claims this calibration feature was used as a means of reducing the amount of

commanded EGR following engine start up in order to achieve improved fuel economy on the regulatory test cycles. As Dr. Atkinson appears to indicate, reduced use of EGR on the regulatory test cycles would be expected to increase engine-out emissions of NO<sub>x</sub> and make emissions certification of the Subject Vehicles more rather than less difficult for FCA.

170. Based on my review of materials that Dr. Atkinson has considered, I find that he makes several unsupportable assumptions about T\_Engine because he fails to consider the full record in his analysis:

171. Dr. Atkinson fails to consider record evidence that the SCR system was expected to compensate for increases in engine-out NO<sub>x</sub> associated with T\_Engine in order to control tailpipe-out NO<sub>x</sub> emission levels. As Palma testified, “the presence of the SCR system is an element of balance how the EGR and SCR system work with the intent of maintaining tailpipe emissions neutral.” [Palma Tr., at 72:16–23.] Further, Dr. Atkinson provides no evidence that demonstrates that T\_Engine as it was implemented on the Subject Vehicles, equipped with SCR, was the same as the earlier versions of T\_Engine described in the European context, including in the April 2010 presentation. In fact, the European predecessors to the Subject Vehicles did not include SCR technology, which Dr. Atkinson fails to mention.

172. Dr. Atkinson’s criticism of the use of T\_Engine, a modeled temperature, instead of the coolant temperature in part stems from his failure to account for the SCR system. He asserts that the mere use of a modeled engine temperature inherently suggests that a defeat device has been used. [Atkinson Report, at ¶¶ 104, 119, 121.] He states that “using the actual measured coolant temperature . . . is standard in the industry”

without specifying what “the industry” uses this parameter for or what he bases this assertion on. [Atkinson Report, at ¶ 104.] Dr. Atkinson ignores the rationale for using the modeled temperature, namely the need to schedule the EGR according to when the SCR was in an optimal operating range to efficiently convert NOx. [Palma Transcript, at 72:13–73:2, 83:18–23, 98:5–18.] At a warm restart, the SCR temperature will be below the coolant temperature, meaning use of the latter as an input into EGR could deteriorate emissions performance. Dr. Atkinson fails to consider information from his own supporting materials that suggests the calibration was instead intended to track SCR warm-up, not engine warm-up, and that the SCR was expected to address any increased engine-out NOx resulting from the use of T\_Engine.

173. Having reviewed the materials supporting Dr. Atkinson’s report, it appears that the amount of fuel injected is an input into T\_Engine further demonstrates that T\_Engine could serve as a proxy for SCR temperature. The ATS (and SCR) is heated by exhaust gases flowing from the combustion chamber through the ATS. The amount of fuel injected is a reasonable measure of the amount of heat that would be generated in the combustion chamber and that ultimately would heat the SCR system to its optimal range. Palma testified, “The tEngine can reduce the EGR in conditions where the SCR is in general capable of compensating that EGR reduction.” [Palma Tr., at 83:19–21.]

174. When he does engage with the use of the SCR, Dr. Atkinson appears to misuse evidence from a solitary email in order to opine on a hypothetical possibility; he does not meaningfully address how the SCR system interacts with the use of T\_Engine. Dr. Atkinson cites to a Bosch contractual guarantee of 90% NOx conversion efficiency by the SCR system as a means for calculating just how much engine-out NOx emissions

could increase while remaining compliant with the regulations. [Atkinson Report, at ¶¶ 113–114.] In doing so, Dr. Atkinson relies on one statement by Rocco Vicedomini from December 2011. [Atkinson report, at ¶ 113 (citing FCA-PIRNIK-001206701).] However, based on my review of the materials relied on by Dr. Atkinson, it appears that VM presented T\_Engine to Chrysler’s Emissions Certification Group for approval on January 20, 2012, which suggests T\_Engine had not yet been included in the calibrations of the Subject Vehicles at the time of Vicedomini’s December 2011 email. [FCA-PIRNIK-001206701.] He makes no showing that 90% NOx conversion efficiency represented the actual, final upper limit on NOx conversion. Dr. Atkinson does not support his reliance on this figure with examples from other emails, and he certainly does not provide data suggesting there was no ability to comply with the applicable emission standards under the Federal Test Procedures given with engine-out NOx levels above 0.300 g/mi.

175. In his analysis on how much engine-out NOx could be tolerated, Dr. Atkinson also creates his own “engineering margin” to artificially decrease the amount of hypothetical engine-out NOx that would be targeted in order to comply with the applicable emissions standards. [Atkinson Report, at ¶ 114.] Although, most manufacturers would likely try to include some sort of compliance margin, there is no standard approach that is used. Dr. Atkinson uses this arbitrary figure to paint Lipkowitz’s suggestion of increasing engine-out NOx to 0.5-0.55 g/mi as “extremely high” in order to argue how T\_Engine was used to defeat an emissions cycle. [Atkinson Report, at ¶ 114.] Dr. Atkinson’s use of early estimates concerning NOx conversion capabilities, given as a matter of a contractual guarantee rather than actual expectations,

demonstrates that he did not perform a thorough analysis of the trade-off between EGR and SCR to arrive at valid conclusions concerning the emissions impact of T\_Engine's operation.

176. My review of the supporting materials underlying Dr. Atkinson's report also suggests that he fails to understand that VM's proposed cycle optimization approach was to modulate the EGR more precisely according to the ability of SCR to mitigate engine-out NOx, in order to achieve better fuel economy and *still meet all the emissions standards required by the emissions regulations*. He fails to consider that the FTP-75 involves a start whereas the HWFET and US06 do not. Whereas Dr. Atkinson claims T\_Engine is a "cycle detecting defeat devic[e]" [Atkinson Report, at ¶ 100] because it schedules a reduction of EGR after the FTP-75, he fails to consider that this reduction may coincide with the end of the FTP test because the vehicle's SCR has reached a sufficient temperature to control the resulting increase in engine-out NOx emissions, while maintaining compliance with required tailpipe-out NOx levels.

177. In another example of the unreliability of Dr. Atkinson's method of relying solely on selections of record evidence to draw conclusions as to whether a feature is a defeat device, Dr. Atkinson claims that T\_Engine operates differently during the regulatory cycles than it does on the road during normal driving conditions, but ignores evidence that T\_Engine in fact behaves the same way out on the road as it does on the dynamometer in a testing laboratory under the same condition.

178. In his explanation of T\_Engine, Dr. Atkinson writes, "The T\_Engine feature was designed expressly as a 'cycle detection' device – causing the engine to behave differently under regulatory emissions testing conditions than in the real world

. . . .” [Atkinson Report, at ¶ 103.] He fails to acknowledge testimony from witnesses that T\_Engine operates the same whether in the lab or on the road. [Palma Tr., at 47:5–21.] As Berry testified: “It has never been a clear-cut it’s detected cycle, it is using alternates maps, it is doing something completely different. *This is more on the scale of it is running all the time .It is running in the street.* It is running when I start the car at my house.” [Berry Tr., at 104:25–105:12 (emphasis added).]

179. Dr. Atkinson also states that T\_Engine has the effect of “turning off the emissions controls as soon as it is determined that the current driving cycle is not an emissions test.” [Atkinson Report, at ¶ 108.] He provides no support for his assertion that T\_Engine “turned off” any portion of the emission control system. As noted, his report lacks specifics on what T\_Engine actually did with respect to emission control system. Dr. Atkinson has also ignored evidence showing that T\_Engine does not turn off any emission control system outside of the most extreme conditions. As Palma testified, “On the North American calibration, the tEngine is not calibrated in such a way that shuts off the EGR, unless for extreme cold temperature or extreme hot temperature for engine protection. But there is not a circumstance where the tEngine is calibrated in such a way that results in realistic cycles that can be realistically encountered to shut off the EGR.” [Palma Transcript, at 83:8–16.]

180. Dr. Atkinson also asserts that the use of fuel quantity as an input makes T\_Engine dependent on a timer. [Atkinson Report, at ¶ 108.] He writes, “by employing time as a variable in its calculation it is ‘clearly a method of detecting an emission cycle’ and hence a method of ‘cycle detection.’” [Atkinson Report, at ¶ 134.] This argument does not alter the fact that, apparent from Dr. Atkinson’s own discussion of T\_Engine,



time was not used as an input to T\_Engine. Dr. Atkinson's analysis here suffers from the same failure as mentioned above, it ignores evidence that the use of fuel injection as an input to T\_Engine served as a proxy for the SCR temperature in order to appropriately modulate EGR based on when the SCR is expected to reach an optimal temperature range. His failure to view T\_Engine as one input within an overall emission control system leads to unreliable assumptions, such as the notion that T\_Engine relies on fuel injection as a timer.

181. As discussed above, Dr. Atkinson relies on assumptions and conclusory statements to support his conclusion that “[a]s the T\_Engine is designed to accomplish . . . a reduction of the effectiveness of the emission control systems under ordinary real-world driving conditions . . . T\_Engine is clearly a ‘defeat device’ as contemplated in 40 CFR § 86.1809-12.” [Atkinson Report, at ¶ 109.] In my opinion, he relies on unwarranted assumptions about the operation of T\_Engine to support this conclusion.

182. Dr. Atkinson assumes what he is trying to prove—that T\_Engine reduces the effectiveness of the emission control system in normal operating conditions. For example, he writes, “alternative engine control and calibration actions (for example electing not to open the EGR valve, or not to open the EGR valve as much as is necessary to adequately control NOx emissions) *could* be undertaken, and that action *could result in higher tailpipe NOx emissions* than would ordinarily be allowed or accounted for under the regulatory emissions or fuel consumption test cycle operation.” [Atkinson Report, at ¶ 120 (emphasis added).] As noted, this implies that the emissions standards used on the regulatory cycles apply outside those cycles when there are no such standards for off-cycle conditions. Additionally, Dr. Atkinson appears to assume that certain behaviors,

specifically the closure of the EGR valve, were triggered by the T\_Engine calibration feature when he has cited no evidence supporting that idea.

183. Dr. Atkinson also assumes that the April 2010 presentation on a calibration feature referred to as T\_Engine accurately describes the strategy as used in the Subject Vehicles. As Palma testified, the most appropriate way to discuss how a feature operates is to discuss how it is calibrated. [Palma Tr., 86:12–17.] Dr. Atkinson’s report does not do this, and instead relies on the assumption that any reference to T\_Engine at any point in time can be used to describe how the T\_Engine calibration feature included in the Subject Vehicles.

184. Highlighting the tenuousness of that assumption, Dr. Atkinson ignores record evidence suggesting that the April 2010 presentation does not address T\_Engine as calibrated in the Subject Vehicles. *First*, Palma testified that the WK/DS project had not yet begun in April 2010. [Palma Tr., at 68:3–7.] *Second*, as noted, the vehicles referenced in the April 2010 presentation did not include SCR systems. [Palma Tr., at 65:20.] *Third*, the April 2010 presentation focuses on the use of Injection Rate Shaping (“IRS”), including the statement, “[m]ost importantly, it could be used for controlling the enable conditions for the IRS functionality such that it only runs for the ‘emission portion’ of the drive cycle.” [FCA-PIRNIK-001415716.] The Subject Vehicles did not use IRS. Palma testified, “I know what the calibrations are in the subject vehicles, and there is no IRS and there is no functionality that is functional for approximately 20 minutes per day so long as the vehicle is operated in conditions which are similar to the emission test conditions.” [Palma Tr., at 57:10–15.]

185. In support of his conclusions, Dr. Atkinson also assumes that email language describing T\_Engine prior to the introduction of the calibration feature into the Subject Vehicles can be used to show how it reduces the effectiveness of the emission control system.

186. For example, in ¶ 111 of his report, Dr. Atkinson cites a June 2010 statement from Sergio Pasini, “we all know (or we’ll know soon) the egr rate will be managed mainly on t-engine which is, no matter what Fiat says, a cycle detection . . . .” [Atkinson Report, at ¶ 111 (citing FCA-PIRNIK-001494623).] However, as with the April 2010 presentation, Dr. Atkinson fails to connect the statements in this email with the specific aspects of T\_Engine as calibrated in the Subject Vehicles. When shown this email at his deposition, Palma highlighted the presence of the SCR system on the Subject Vehicles as a key distinction from the version of T\_Engine discussed in Pasini’s email. [Palma Tr., at 72:17–23.]

187. Moreover, in his efforts to use this June 2010 email as a basis for evaluating T\_Engine, Dr. Atkinson appears to misconstrue the timeline for the development of the Subject Vehicles; he states, “[b]y June 2010 (only two months later), the T\_Engine function had been presented to FCA and was being incorporated into the Subject Vehicles in the United States to allow for the management of the EGR rate by the engine control system.” [Atkinson Report, at ¶ 111 (citing FCA-PIRNIK-001494623).] Dr. Atkinson has not demonstrated that the emission control system of the Subject Vehicles was even in development in June 2010, much less that T\_Engine had been presented to Chrysler and incorporated into the Subject Vehicles. When asked about the timing of the development of the Subject Vehicles’ emission control system, Palma

testified, “I do not know at what *point in 2011* that kind of development started.” [Palma Tr., at 20:18–23.] VM Motori did not even present T\_Engine to Chrysler for use in the Subject Vehicles until January 2012. [FCA-PIRNIK-001203944; FCA-PIRNIK-001203954.]

188. Dr. Atkinson also relies on a December 2011 email in which Vicedomini stated, “we need to introduce a sort of ‘cycle detection’ since a the [*sic*] working area of the HWFEC covers also the FTP75 area. The introduction of t\_Engine is difficult because of the warm restart before the 3rd phase during FTP75. Anyway we can try something ‘special’ for NAFTA.” [Atkinson Report, at ¶ 113 (citing FCA-PIRNIK-001206701).] Dr. Atkinson fails in his report to provide any context for interpreting this email, including record evidence that T\_Engine had actually been calibrated in the Subject Vehicles by December 2011. Once more, I observe that Dr. Atkinson fails to situate an email within the context of the overall project. Palma testified, “But here specifically I think Rocco [Vicedomini] is referring to the fact that the European calibration as is would need adjustments to the regulatory cycles here in the United States.” [Palma Tr., at 82:21–25.] Indeed, Vicedomini’s email references a common “working area” between the HWFET and the FTP-75 emissions cycles; Dr. Atkinson assumes that this email shows an intent to operate a different control feature in off-cycle conditions rather than an understanding that the Subject Vehicles needed to comply with multiple emissions cycles.

189. Dr. Atkinson also assumes that Berry’s emails from January and February 2012 demonstrate that T\_Engine reduced the effectiveness of the emission control system, yet the report fails to account for Berry’s assessment of T\_Engine and of his own

expertise. Dr. Atkinson does not acknowledge that Berry disclaimed that he today considers T\_Engine an AECD or a defeat device. Berry testified: “So this is tough, because *I’m not the expert on AECDs or detection of cycles* or anything like that, so *ever since the beginning of this thing to me it has been a gray zone. It has never been a clear-cut it’s detected cycles*, it is using alternates maps, it is doing something completely different. This is more on the scale of it is running all the time . . . . So to me it was a gray zone, and I could never really put my finger on is it or is it not, but, based on the presentation I had seen, I was piecing this thing together.” [Berry Tr., at 105:3–18 (emphasis added).] While Dr. Atkinson relies on Berry’s emails to support his conclusions, he does not mention the fact that Berry testified that T\_Engine was a “gray zone” rather than a defeat device.

190. Dr. Atkinson also assumes Berry understood how T\_Engine operated but ignores evidence that Berry was not responsible for working with the SCR calibrations in the Subject Vehicles. When asked at his deposition, “what factors was [VM] calibrating in order to determine dosing,” Berry answered, “I have no idea. We had a specialist doing it.” [Berry Tr., at 39:13–23.] Moreover, Palma testified that Berry “lack[ed] a true understanding of how the function worked.” [Palma Tr., at 93:20–21.] Rather than evaluate T\_Engine based on a review of the actual calibrations, review of emissions data, or performance of Subject Vehicles, Dr. Atkinson assumes that email statements subsequently disclaimed by the relevant witness relay sufficient information about the calibration feature to support his opinion. I disagree with that methodology.

191. Dr. Atkinson also relies on emails in which Berry advocates for the non-use of T\_Engine in OBD calibrations to assert T\_Engine constitutes a defeat device; in

doing so, he assumes the motivation of witnesses while disregarding important context. [Atkinson Report, at ¶¶ 138, 139.] He states, “additional evidence that T\_Engine was an impermissible defeat device is the fact that the input to the OBD system diagnostic algorithms was deliberately made to be the actual measured coolant temperature (and not the Modeled Engine Temperature / T\_Engine as in the case of the engine and ATS control and calibration software).” [Atkinson Report, at ¶ 139.]

192. This assessment ignores the difference between OBD compliance requirements and AECD requirements. Dr. Atkinson ignores the portion of the record showing that Berry deferred to the AECD determinations made by the Emissions Certification group at Chrysler. Berry testified, “I couldn’t even put a finger on is it a problem, is it not a problem, so *that is why I left it to the Chrysler AECD experts to decide and rely on their judgment.*” [Berry Tr., at 191:5–192:15 (emphasis added).] Given that Berry testified that he deferred to the judgment of Chrysler’s AECD experts, I find the assumption that emails relating to the choice between potential inputs into the OBD system unconvincing as support for the conclusion that a calibration feature constitutes an emissions defeat device.

#### **B. Vehicle Speed Corrections**

193. Dr. Atkinson’s opinions and their bases related to the Vehicle Speed Corrections are presented in ¶¶ 155 through 183 of his report.

194. Dr. Atkinson provides no complete description of the function of the Vehicle Speed Correction calibration features as they were actually implemented in the Subject Vehicles. Accordingly, without any complete explanation of how the features work, Dr. Atkinson has provided no adequate basis to conclude that the Vehicle Speed Corrections are AECDs or defeat devices. Moreover, it does not appear that

Dr. Atkinson has done any technical review or performed any technical analysis of the Vehicle Speed Corrections. Rather, his conclusions appear to be based solely on selected excerpts of EPA filings and emails.

195. In addition, Dr. Atkinson's opinion that the Vehicle Speed Corrections are defeat devices is undermined by his own admission that they operate during a substantial portion of the US06 test procedure, which is a part of the Federal Test Procedure.

196. Dr. Atkinson opines that, with respect to the Vehicle Speed Corrections, "this feature has the effect of reducing the EGR to the engine, which – all else being equal – will lead to higher in-cylinder NOx production and hence higher engine-out NOx emissions." [Atkinson Report, at ¶ 156] and that it is actuated at a "vehicle speed of 62 mph" [Atkinson Report, at ¶ 157]. He concludes that this feature is a "defeat device" because it affects EGR under conditions that are "not substantially included in the Federal emission test procedures of the FTP and HWFET regulatory cycles." [Atkinson Report, at ¶ 175.]

197. I note that Dr. Atkinson appears to contradict himself as he states in his report that that these features are active for parts of both the HWFET and the US06 tests. [Atkinson Report, at ¶ 158.] Second, he appears to minimize the relevance of the fact that these calibration features operate during the US06 test cycle because the emission standards that apply on that test cycle are higher than those that apply to the FTP 75 test cycle. [Atkinson Report, at 158.] This ignores the fact that it is precisely because emissions are expected to be higher under more demanding higher speed and aggressive driving that the emissions standards for the testing based on the US06 and the in-use SFTP standards are higher than those based on the FTP-75.

198. In reaching his conclusion that the Vehicle Speed Corrections “are not substantially included in the Federal emission test procedures of the FTP and HWFET regulatory cycles,” Dr. Atkinson excludes the US06 despite the fact that it constitutes one of four driving cycles included in the Federal Test Procedures. [Atkinson Report, at ¶ 175.] He incorrectly assumes that the US06 test cycle, during which the Vehicle Speed Corrections were active, is irrelevant with respect to determining if the Vehicle Speed Corrections are defeat devices.

199. Although Dr. Atkinson claims that tailpipe-out NO<sub>x</sub> will increase with the use of the Vehicle Speed Corrections “if” they are not adequately remediated by the ATS, including the SCR [Atkinson Report, at ¶ 157], he does not demonstrate via emissions or other data that the SCR in fact fails to remediate increased engine-out NO<sub>x</sub> emissions. This provides another example of Dr. Atkinson basing his opinions on an incomplete understanding of how the engine and emissions control systems operate, instead of relying on actual data. In another unsupported statement, Dr. Atkinson opines that “[t]he NO<sub>x</sub> increase caused by this feature (at least the MY14 Subject Vehicles) was not adequately controlled by the SCR.” [Atkinson Report, at ¶ 174.] Again, he fails to support this statement with any meaningful data or evidence.

200. Dr. Atkinson attempts to frame the Vehicle Speed Corrections as equivalent to a timer-based feature because they operate at speeds not covered by the FTP-75 driving cycle [Atkinson Report, at ¶ 168], but Dr. Atkinson’s own description of the Vehicle Speed Corrections shows that it does not use time as an input. Also, as discussed above, it operates during the US06 cycle.



201. Dr. Atkinson's assumption that the Vehicle Speed Corrections were specifically created to run off-cycle also appears unwarranted. He writes, "[t]he presentation to [Bob] Lee states that the reduction of EGR based on vehicle speed was created specifically to avoid it being active on the emissions test cycle." [Atkinson Report, at ¶ 162.] As support, he quotes a portion of the presentation on fuel economy that makes reference to the trade-off between NO<sub>x</sub> emissions and fuel economy. [Atkinson Report, at ¶ 162 (citing FCA-PIRNIK-001038656).] The presentation makes no statement suggesting that Vehicle Speed Corrections were designed to avoid the FTP-75.

202. Dr. Atkinson also states that the Vehicle Speed Corrections will be "used far more in real-world driving or real-world operation than is reflected in the test cycle operation." [Atkinson Report, at ¶ 158.] Putting aside his failure to define what conditions constitute "real-world driving or real-world operation," he appears to base this conclusion on a statistic that the MY 2014 iteration of the Vehicle Speed Correction will be invoked 23.6% of the time in real-world operation. Yet the same document cited by Dr. Atkinson, FCA's September 16, 2016 208 Response, states that the MY 2014 version of the Vehicle Speed Correction is active for approximately 52% of the duration of the US06 test cycle. [FCA-PIRNIK-001621323.]

**C. Valvetrain Cleaning Routine / EGR # 12**

203. Dr. Atkinson's opinions and their bases related to the Valvetrain Cleaning Routine are presented in ¶¶ 184 through 222 of his report.

204. Dr. Atkinson provides no complete description of the function of the Valvetrain Cleaning Routine calibration feature as it was actually implemented in the Subject Vehicles. Accordingly, without any complete explanation of how the feature

works, Dr. Atkinson has provided no adequate basis to conclude that the Valvetrain Cleaning Routine is a defeat device. Moreover, it does not appear that Dr. Atkinson has done any technical review or performed any technical analysis of the Valvetrain Cleaning Routine. Rather, his conclusions appear to be based solely on selected excerpts of EPA filings and emails rather than any discernable methodology.

205. I disagree that Dr. Atkinson has proven that the Valvetrain Cleaning Routine is a defeat device. *First*, as Dr. Atkinson notes in his report, CARB staff allowed the Valvetrain Cleaning Routine calibration feature to be used following the addition of several enablement criteria. [Atkinson Report, at ¶ 210.] In my opinion, this would not have occurred if CARB had concluded that the Valvetrain Cleaning Routine was a defeat device. *Second*, issues with engine operation and drivability like that posed by the potential for the fouling of valves in the engines of the Subject Vehicles are related to both engine damage and driver safety, which are, as Dr. Atkinson acknowledges, a basis for allowing an AECD. Further, Dr. Atkinson is either unaware of or fails to acknowledge that there are other well-known calibration features associated with diesel engines that are designed to function at regular time intervals such as regenerative algorithms for diesel particulate that use a “fail safe” timer. Such calibration features do not operate during certification test cycles and their impact on emissions is accounted for in the certification process through the use of additive infrequent regeneration adjustment factors (IRAFs).

206. To explain the Valvetrain Cleaning Routine, Dr. Atkinson states that “EGR #12 completely shuts off EGR function for five minutes after thirty minutes of driving every drive cycle (and engine rpm > 1000).” [Atkinson Report, at ¶ 184.] He

also notes in the same paragraph that the purpose of this calibration feature is to “clean potential deposits on the valve stem and valve seat” that could lead to problems with engine operation and vehicle drivability. [Atkinson Report, at ¶ 184.]

207. As part of his analysis of whether the Valvetrain Cleaning Routine is a defeat device, Dr. Atkinson concludes that this calibration feature “was not justified for the protecting the Subject Vehicles against damage or accident.” [Atkinson Report, at ¶ 189.] In reaching this conclusion, Dr. Atkinson assumes the existence of “hardware fixes” to argue that the Valvetrain Cleaning Routine was not necessary to protect the Subject Vehicles against damage or accident. [Atkinson Report, at ¶ 214.] He describes a “change to the design of the exhaust valve stem seal” as if it was a specific alternative that existed at the time the Valvetrain Cleaning Routine was introduced. [Atkinson Report, at ¶ 192.]

208. Nowhere does Dr. Atkinson support his assertion that a hardware fix actually existed when the Valvetrain Cleaning Routine was introduced; he ignores record evidence suggesting that Chrysler and VM evaluated the potential options available to them. When asked if there were solutions to shudder outside of the Valvetrain Cleaning Routine, Palma testified, “There was a number of different solutions that the team in Italy looked at. Eventually one solution that was implemented was a change to the design of the exhaust valve seal.” [Palma Tr., 174:10–13.] Palma thus testified that the team considered different options and eventually opted for a hardware change at a later time. Bob Lee similarly testified that hardware changes were “concepts that were put on the table,” but Dr. Atkinson assumes a specific hardware solution existed when the Valvetrain Cleaning Routine was introduced. [B. Lee Tr., at 109:10–12.] In contrast to

this assumption, Bob Lee testified, “[A]t that time, we didn’t have any evidence of whether they would work or not.” [B. Lee Tr., at 110:4–7.] Dr. Atkinson’s report fails to consider contrary evidence about the lack of a validated hardware solution.

209. Dr. Atkinson also ignores evidence that the 30-minute timer used in the Valvetrain Cleaning Routine was necessary to protect the engine from damage. To buttress his conclusion that the Valvetrain Cleaning Routine is a “cycle beating” feature, Dr. Atkinson states “it was programmed specifically so it was not invoked and did not run during the emissions tests, specifically the FTP.” [Atkinson Report, at ¶ 216.] Dr. Atkinson ignores record evidence suggesting the Valvetrain Cleaning Routine required a hot engine in order to perform the function of burning away excess soot, such that waiting 30 minutes also enabled the feature to better protect the vehicle from damage. As Palma testified, “I remember that there was a desire to make the routine running in conditions where the exhaust temperature would be . . . reasonably high to make sure that hot and lean flow would go through the valve and help the oxidation of the soot on the exhaust valves.” [Palma Tr., at 186:13–22.] Dr. Atkinson selectively ignores half of Palma’s explanation for the 30-minute timer in order to describe the Valvetrain Cleaning Routine as designed to beat the emissions test cycles.

210. Dr. Atkinson also remarks, “They also originally believed running the EGR Valvetrain Cleaning Routine after every 40 minutes of operation would be sufficient.” [Atkinson Report, at ¶ 193.] Dr. Atkinson cites to one unquoted email, FCA-PIRNIK-001741666. In this email, Padovan wrote, “I think we should declare it in the AECD, at that point we would need to declare also that the cleaning starts with a timer, after 40 min.” [FCA-PIRNIK-001741666.] I do not find that this single statement,

absent other context, adequately demonstrates the original belief concerning when the Valvetrain Cleaning Routine could run. Other record evidence cuts against Dr. Atkinson's assertion. Palma testified, "it shuts off the EGR for five consecutive minutes after thirty minutes of vehicle operation. That is the way it was calibrated originally model year '14." [Palma Tr., at 170:19–22.] Furthermore, it is irrelevant whether the Valvetrain Cleaning Routine began at 30 minutes or 40 minutes because in either instance the routine would not have run on the Federal Test Procedures.

211. Dr. Atkinson purports to conclude that "because the AECD reduced the effectiveness of the emission control system and FCA never provided any justification as to why it met an exception, this AECD is a defeat device." [Atkinson Report, at ¶ 215.] That analysis ignores that the AECD disclosure of the Valvetrain Cleaning Routine, which was approved by CARB for both the MY 2015 and MY 2016 Subject Vehicles, included a "Justification" section. [FCA-PIRNIK-001040040.]

212. The AECD description of the Valvetrain Cleaning Routine section stated "[e]xperience from durability testing shows *the need to clean the exhaust valves to prevent deposit build up*. These exhaust valve deposits can impact driveability, emissions performance and *durability of the engine*. The engine needs to be fully warm to optimize the valve cleaning." [FCA-PIRNIK-001040040 (emphasis added).]

213. In reaching his conclusion that the Valvetrain Cleaning Routine is a defeat device, Dr. Atkinson also fails to account for CARB's approval of the calibration feature on engine protection grounds. FCA justified the Valvetrain Cleaning Routine as a measure to protect against the damage to the vehicle caused by sooting. [Mazure Tr., at 102:9–11.] As Mazure testified, after CARB was provided with emissions data, "They

were satisfied EGR 12 was required to protect the components, but they wanted some improvements to be done to the calibration . . . .” [Mazure Tr., at 2–3.]

214. In light of witness testimony concerning CARB’s remarks about the Valvetrain Cleaning Routine and the fact that CARB approved a MY 2015 version of the calibration feature that continued to rely on a 30-minute timer, I do not agree with Dr. Atkinson’s assertion that CARB determined the Valvetrain Cleaning Routine fell outside any of the exceptions to the defeat device definition. [Atkinson Report, at ¶ 205.]

215. Furthermore, Dr. Atkinson ignores the fact that CARB also approved the Valvetrain Cleaning Routine for MY 2016. The approved write-up of the Valvetrain Cleaning Routine referenced that the calibration feature cleaned the valves to avoid damage to the engine, thus undercutting any assessment that CARB deemed the feature to fall outside the component protection exception. Dr. Atkinson asserts that FCA “never provided any justifications as to why [the Valvetrain Cleaning Routine] met an exception” from the defeat device definition, [Atkinson Report, at ¶ 215], yet the Company contemporaneously provided CARB and EPA with a justification prior to receiving approval to use the modified Valvetrain Cleaning Routine for MY 2015 and MY 2016. [MY15 list; FCA-PIRNIK-001040040; FCA-PIRNIK-001038542; CARB Executive Order A-009-1257-1 (Feb. 11, 2015).]

216. Dr. Atkinson also adds his own interpretation of emails from CARB to his argument that the calibration feature is a defeat device, when those e-mails do not appear to support his claim. Whereas Dr. Atkinson writes that “[i]n July or August 2014, CARB contacted FCA regarding EGR # 12 and cited its opinion that this constituted a defeat device,” [Atkinson Report, at ¶ 203], none of the materials he cites in support of that

specific proposition even mention the term “defeat device.” Lucky Benedict’s September 2014 email merely stated, “[t]urning off EGR for 5 minutes after 30 minutes of operation on every drive cycle appears excessive.” [FCA-PIRNIK-001120673.] Dr. Atkinson also cites an “August 10, 2014 presentation discussing CARB’s concerns regarding EGR # 12.” [Atkinson Report, at ¶ 203.] This presentation made no reference to a potential defeat device. It instead stated, “CARB is concerned about the feature in our software . . . .” [FCA-PIRNIK-001040178.]

217. Similarly, in ¶ 205, Dr. Atkinson cites an email from Duc Nguyen of CARB for the proposition, “CARB informed FCA that AECD # 3 did not meet any of the exceptions that would designate it as not being a defeat device. In particular CARB determined that AECD # 3 was not necessary for protection of the engine.” [Atkinson Report, at ¶ 205.] In this email, Nguyen did not make any reference to defeat devices; rather, he stated, “[w]e believe problems of sticking exhaust valves that require regular EGR shut-offs are symptomatic of design weakness . . . [w]e have a dim view regarding this proposed AECD.” [FCA-PIRNIK-001040943.] Dr. Atkinson attempts to convert Nguyen’s remarks, which appear to be part of an ongoing dialogue about certification, into a final determination from CARB that the Valvetrain Cleaning Routine constitutes a defeat device. That CARB ultimately approved the Valvetrain Cleaning Routine exemplifies the manner in which these preliminary agency statements differ from final determinations.

218. Dr. Atkinson’s report also consistently attributes generalized language from Chrysler employees to CARB as if CARB deemed the Valvetrain Cleaning Routine / EGR # 12 to be a defeat device. The report cites an October 2, 2014 statement from

Mazure, “[t]hey still consider this EGR#12 calibration feature ‘a defeat device’ since we have provided them no emissions data justification . . . .” [Atkinson Report, at ¶ 206; FCA-PIRNIK-001040943.] However, Dr. Atkinson ignores witness testimony contextualizing this email. Mazure testified that CARB never articulated that they believed the unmodified version of the Valvetrain Cleaning Routine used for MY 2014 was a defeat device. [Mazure Tr., at 109:21–25.] He added, “they hadn’t made final judgment, and they ended up approving it as an AECD.” [Mazure Tr., at 109:4–7.]

219. Dr. Atkinson similarly cites internal emails by Mazure and Palma concerning discussions with CARB about the MY 2014 vehicles to assert that “all the Model Year 2014 Subject Vehicles contained impermissible defeat devices.” [Atkinson Report, at ¶ 208.] Contrary evidence suggests that these emails reflect only that the discussion had moved on from MY 2014 to discuss approval for MY 2015 and not any assessment that MY 2014 vehicles contained defeat devices. Again, Mazure testified that CARB never called the unmodified MY 2014 Valvetrain Cleaning Routine a defeat device. [Mazure Tr., 109:21–25.] Palma similarly testified, “In the conversation that I participated in with CARB on EGR 12, I don’t remember them ever mentioning the term defeat device.” [Palma Tr., at 256:12–14.] He did not recall others conveying that CARB considered the Valvetrain Cleaning Routine to be a defeat device. [Palma Tr., at 256:16–19.] Mazure explained, “I discussed with Emanuele Palma that we told them about the ‘14 model year, CARB acknowledged the ‘14 model year, and there is no reason to keep discussing ‘14 model year again.” [Mazure Tr., at 119:22–25.]

220. The above is consistent with my experience in that to the extent concerns develop with respect to any aspect of an already certified vehicle or engine, the usual



solution is to request changes for future model years, as occurred in this case. The above does not, as stated, support Dr. Atkinson's conclusion that the Valvetrain Cleaning Routine is a defeat device.

**D. Online Dosing**

221. Dr. Atkinson's opinions and their bases related to Online Dosing are presented in ¶¶ 223 through 271 of his report.

222. Dr. Atkinson provides no complete description of the function of the Online Dosing calibration feature as it was actually implemented in the Subject Vehicles. Accordingly, without any complete explanation of how the feature works, Dr. Atkinson has provided no adequate basis to conclude that Online Dosing is an AECD or a defeat device. Moreover, it does not appear that Dr. Atkinson has done any technical review or performed any technical analysis of Online Dosing. Rather, his conclusions appear to be based on selected excerpts of EPA filings and emails rather than any discernable methodology.

223. Dr. Atkinson makes unsupported claims that Online Dosing did not operate during the Federal Test Procedures and that it was intended to reduce DEF dosing rates at the expense of tailpipe NOx emissions increases. In my opinion, he has not demonstrated that is in fact the case.

224. In considering the calibration features, Dr. Atkinson states, without any citation, "Online Dosing also caused the emissions controls of the Subject Vehicles to perform differently in laboratory testing that [*sic*] they did on the road in real-world driving conditions." [Atkinson Report, at ¶ 261.] Dr. Atkinson does not cite any evidence to support his conclusion that Online Dosing operated differently depending on whether it was tested in the laboratory on a dynamometer or on the road.

225. Dr. Atkinson states that Online Dosing reduces the effectiveness of the emission control system because “it reduces the amount of dosing that occurs so that even the urea stored on the catalyst would be depleted.” [Atkinson Report, at ¶ 228.] In my opinion, Dr. Atkinson has not demonstrated that Online Dosing reduces the effectiveness of the emission control system.

226. As is the case for the other calibration features at issue, Dr. Atkinson cites to no data supporting the assertion that the final version of Online Dosing as included in the Subject Vehicles increases NO<sub>x</sub> emissions. Indeed, Kasser Jaffri, a witness frequently cited by Dr. Atkinson throughout his Online Dosing analysis, testified that it was not his understanding that Online Dosing caused increased emissions. [Jaffri *Pirnik* Tr., at 15:14–20.]

227. Additionally, Dr. Atkinson’s description of Online Dosing states that “[d]epletion of urea . . . from the SCR catalyst would reduce the effectiveness of the *ATS* with regard to NO<sub>x</sub> reduction.” [Atkinson Report, at ¶ 228 (emphasis added).] Dr. Atkinson relies on the notion that Online Dosing has lower conversion efficiencies than Standard Dosing throughout his report. [Atkinson Report, at ¶¶ 236, 246.] However, given that a defeat device must reduce the effectiveness of the *emission control system*, rather than merely the *ATS*, Dr. Atkinson’s statements about the impact Online Dosing has on the *ATS* and NO<sub>x</sub> conversion efficiencies cannot, without more data and explanation, demonstrate that the calibration feature is an AECD or defeat device. Further, Dr. Atkinson’s assumption that reducing urea dosing automatically will reduce the effectiveness of the SCR would not hold true in conditions where the SCR is not capable of optimal performance, such as those conditions where ammonia slip can occur.

As discussed below, Dr. Atkinson does not account for evidence that Online Dosing was used in precisely such conditions.

228. Dr. Atkinson fails to consider that Online Dosing could operate during other emissions cycles besides the FTP-75 in his analysis of whether the feature constitutes a defeat device. For example, he states, “[n]either of the other exceptions [to the defeat device definition] apply, as recognized by Mr. Jaffri because activation conditions for Online Dosing were not expected to be reached on the FTP test, and Online Dosing was not only used for engine starting.” [Atkinson Report, at ¶ 241.] Here, Dr. Atkinson assumes that because Online Dosing was not expected to run during the FTP-75, it therefore also was not expected to run during the US06 or HWFET cycles. As stated, these other cycles have their own emissions standards that vehicles must meet. In my opinion, Dr. Atkinson’s report leaves open the possibility that Online Dosing qualifies for the exception to the defeat device definition for features with an impact in conditions that are “substantially included in the Federal emission test procedure.”

229. Dr. Atkinson assumes that the purpose of Online Dosing was to conserve DEF rather than protect the SCR catalyst from damage and/or ammonia slip. He concludes, “Online Dosing is a defeat device because it is designed to reduce DEF consumption to hit DEF consumption targets at the expense of NOx conversion ability, extent and efficiency.” [Atkinson Report, at ¶ 263.] In my opinion, his assumption that Online Dosing was not necessary for vehicle protection is not supported due to his lack of technical scientific/engineering analysis and selective use of the record.

230. To argue that Online Dosing was used to reduce DEF consumption, and therefore that it was not used to prevent ammonia slip, Dr. Atkinson relies on a March 22,

2013 email from Giorgio Zacchi with the statement, “furthermore the urea slip can be avoided also with the std dosing strategy.” [Atkinson Report, at ¶ 242 (citing FCA-PIRNIK-001516674).] However, Dr. Atkinson assumes that Zacchi’s email reflects a full understanding of the need for Online Dosing, and he does not account for witness testimony stating that Online Dosing was in fact used to prevent ammonia slip. Palma testified that at some point in March 2013, Riccardo Pettazzoni informed him that it was possible to prevent ammonia slip in Standard Dosing, but that Pettazzoni subsequently told him the ability of Online Dosing to reset storage on the SCR catalyst was in fact necessary to the quality of the calibration. [Palma Tr., at 231:2–234:18.] Jaffri testified that he understood Online Dosing as “just a dosing mode that optimizes conversion while mitigating possible ammonia slip,” and that slip prevention was a valid justification because “from a controls perspective, if you continue to add fluid and you get no benefit, and you create an irritant, to me it’s justifiable.” [Jaffri MDL Tr., at 63:6–14, 361:9–15.]

231. EPA also recognizes the need to avoid ammonia slip. For example, when EPA announced in 1999 its intent to consider new quality requirements for diesel fuel, it noted that new fuel standards could lead to better operation of certain emission control technologies, including SCR systems, that at the time were not widely used in mobile source applications. In weighing the value of this potential benefit, EPA cautioned that SCR systems bring unique concerns, including the necessity of “precise control of the quantity of urea injection into the exhaust” because “too large of a quantity of urea leads to a condition of ‘ammonia slip.’” 64 Fed. Reg. 26142, 26150 (May 13, 1999). Further, in the heavy-duty diesel context, EPA has recognized that “the key to reducing N<sub>2</sub>O emissions lies in intelligent emission control system design and operation, namely . . .

[a]voiding high catalyst surface coverage of NH<sub>3</sub> through urea dosing management when the system is in the ideal N<sub>2</sub>O formation window.” 80 Fed. Reg. 40,138, 40, 204 (July 13, 2015) (N<sub>2</sub>O is greenhouse gas that is of concern from the perspective of climate change.). In any case, the problems associated with overdosing are well recognized and manufacturers are expected to design their emission control systems to prevent catalyst damage, ammonia slip, and the emissions of other pollutants of concern.

232. I would also note again that Title 40 CFR section 86.1810-01(a)(1) requires that issues such as ammonia slip/oxidation be addressed by manufacturers and that CARB, which has incorporated this section by reference into its emissions regulations, communicated to engine and vehicle manufacturers, in a July 2010 presentation, that the maximum allowable average ammonia slip level in the exhaust of diesel vehicles equipped with SCR systems would be 10 parts per million.<sup>22</sup>

233. Dr. Atkinson also fails to acknowledge that the record also includes evidence that Bosch suggested *decreasing* the DEF dosing rates on the Subject Vehicles in response to observed damage to the SCR catalysts, and thus that decreased dosing rates may have been justified by the need for component protection. On May 5, 2013, Riccardo Pettazoni circulated “the slide that [Bosch] presented to us and then to Chrysler about the SCR chip-off.” [FCA-PIRNIK-001556698.] Slide 1 of the Bosch presentation displays pictures of damaged SCR catalyst washcoats and states, “[h]igh dosing rate with low exhaust flow and temperature may cause liquid water to be [absorbed] on SCR washcoat.” [FCA-PIRNIK-001556701.]

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<sup>22</sup>[https://www.arb.ca.gov/msprog/onroadhd/documents/epa-arb\\_scr\\_workshop\\_7-20-10.pdf](https://www.arb.ca.gov/msprog/onroadhd/documents/epa-arb_scr_workshop_7-20-10.pdf).

234. Dr. Atkinson asserts that Online Dosing was used “merely to save DEF consumption without regard to its effect on tailpipe-out NOx emissions levels.”

[Atkinson Report, at ¶ 230.] Throughout his commentary on Online Dosing, Dr. Atkinson makes reference to a supposed purpose of achieving DEF consumption targets. [Atkinson Report, at ¶¶ 238, 245, 253, 264.] Dr. Atkinson writes, “[p]rogramming a vehicle’s dosing strategy with the purpose of conserving DEF/urea and/or hitting consumption targets is impermissible and renders the feature a defeat device.” [Atkinson Report, at ¶ 232.]

235. Nowhere in his report does Dr. Atkinson acknowledge witness statements that Online Dosing was not used to meet DEF refill targets. Palma testified, “I didn’t think it was a justification to run very low dosing off cycle because we want to change [the] refill change interval.” [Palma Tr., at 227:6–11.] Palma also testified that the DEF tank on the Subject Vehicles was one of the largest in the industry and that he could not recall ever being faced with a decision regarding the level of dosing off-cycle in order to meet a refill interval. [Palma Tr., at 227:19–25.] Donald Altermatt, the Chief Engineer for the Subject Vehicles, testified that no one brought it to his attention that a dosing strategy was being used to reduce DEF consumption. [Altermatt Tr., at 48:19–24.] Dr. Atkinson relies on statements by Tamas Szailer, who was not involved with the Subject Vehicles, to assert that Online Dosing was used to conserve DEF. Yet Szailer testified that he did not have firsthand information that Online Dosing was being used to decrease DEF consumption. [Szailer Tr., at 99:12–17.] Jaffri testified that he did not know if Online Dosing was used improperly to conserve DEF. [Jaffri MDL Tr., at 68:21–69:7.]

236. Dr. Atkinson also assumes that the version of Online Dosing actually used in the Subject Vehicles conferred significant DEF conservation benefits. He omits from his report any discussion of record evidence suggesting that the Online Dosing calibration was changed to increase NOx conversion efficiencies, and that in its final form Online Dosing had little utility for conserving DEF.

237. In several portions of his report, Dr. Atkinson cites email discussions about Online Dosing that make reference to an earlier version of the calibration feature, not the version of Online Dosing used in the Subject Vehicles. For example, Dr. Atkinson cites a February 2013 test that apparently “showed under ‘mid load’ steady state conditions Online Dosing increased tailpipe out NOx by approximately 1 gram above Standard Dosing.” [Atkinson Report, at ¶ 234.] He further remarked, “Online dosing caused a significant drop from the target load, which increased tailpipe NOx emissions.” [Atkinson Report, at ¶ 234.] Dr. Atkinson uses these statements to assert, “[f]eatures that reduce the conversion efficiency of the SCR and/or increase tailpipe NOx emissions are AECDs and defeat devices . . . .” [Atkinson Report, at ¶ 234.]

238. However, Dr. Atkinson ignores several emails that suggest VM changed the Online Dosing calibrations to increase NOx conversion efficiencies, therefore differentiating the emissions of the final version of the feature from the results stated in Jaffri’s test. For example, on March 5, 2013, Palma wrote, “SCR on line dosing: The transition between storage control vs. online dosing needs to be smoothed out by introducing a sort of ‘buffer’ between the two strategies in order to get a more similar efficiency.” [FCA-PIRNIK-001699252.] In Jaffri’s notes from the March 2013 meeting, he wrote, “[w]ork will continue by VM to insure [sic] the best possible SCR conversion

efficiency is achievable under all reasonable driving conditions while preventing ammonia slip under dynamic load cases.” [FCA-PIRNIK-001660266 (emphasis added).] On April 8, 2013, Padovan wrote to Berry, “*We are refining the calibration*, to make the transition from standard to online dosing smoother.” [FCA-PIRNIK-001188414 (emphasis added).]

239. Dr. Atkinson similarly ignores emails from a later period highlighting that Online Dosing was changed in a manner that reduced the benefits related to DEF conservation. For example, on September 26, 2013, Pasini circulated a presentation on Online Dosing that stated, “Due to Chrysler policy efficiency during on line dosing conditions was required not to drop consistently → this led to a calibration that does not achieve completely the functional goals for on line dosing: Target efficiencies very similar to std dosing → in general too much high [*sic*], *Limited effect on DEF consumption limitation*.” [FCA-PIRNIK-001692433 (emphasis added).] Similarly, in a January 2014 discussion, Pettazzoni wrote, “I think the cert team should be informed since in the past they were always very skeptical about the on line dosing strategy, and *we basically favored their approach over the DEF consumption*.” [FCA-PIRNIK-001678360 (emphasis added).]

240. Dr. Atkinson’s assumption that remarks by employees involved with OBD calibration and certification supports his conclusions concerning Online Dosing demonstrates the problem with his failure to conduct any independent scientific/engineering analysis. [Zatorski Tr., at 19:6–10, 221:15–19; Jaffri Tr., at 63:6–65:5, 161:3–162:24.] In light of testimony from these individuals disclaiming knowledge of how Online Dosing operated or emissions regulatory requirements, I do not consider



Dr. Atkinson's reliance on their statements to be a reliable basis for drawing conclusions regarding Online Dosing.

241. Based on my review of deposition transcripts, these employees—which include Zatorski, Jaffri, Szailer, and Frank—lacked sufficient familiarity with Online Dosing for Dr. Atkinson to use their statements as the basis for his conclusions about the feature. Zatorski testified that he was not aware of how Online Dosing was calibrated for the Subject Vehicles, that he did not know the conditions under which Online Dosing would reduce dosing levels, and that he was not aware of the justifications for reducing dosing. [Zatorski Tr., at 221:15–222:10.] Indeed, in a September 2015 chat between Zatorski and Frank, which Dr. Atkinson cites in his report, Zatorski asked, “what do you mean by ‘on-line’ dosing?” [Atkinson Report, at ¶ 225 (FCA-PIRNIK-001455109).] Jaffri testified that he was not “the expert in the controls or the strategy.” [Jaffri MDL Tr., at 49:25–50:8.] Szailer stated that he never had access to the calibrations for the Subject Vehicles and that he did not perform work on the engines in the Subject Vehicles. [Szailer Tr., at 129:14–19.]

242. Moreover, none of these employees were experienced with AECD disclosures or emissions compliance, such that Dr. Atkinson's reliance on their comments relating to AECDs, defeat devices, and emissions cheating would be appropriate. Jaffri testified that he was not an expert on defeat devices and thus his understanding of AECDs and defeat devices entirely came through his own self-education. [Jaffri MDL Tr., at 49:25–50:8.] He testified that he approached Online Dosing from an OBD perspective. [Jaffri MDL Tr., at 162:1–11.] Jaffri testified, “I didn't have a relationship with AECDs and the AECD reviewers at EPA. I didn't know what the industry standard

is for detail level. I was just basing . . . this on like an OBD perspective, what I was used to doing.” [Jaffri MDL Tr., at 162:1–11.] Zatorski similarly testified, “I’m not an expert on AECD by any means.” Szailer, who was not involved with the Subject Vehicles, testified that he was “an OBD guy” and that making judgments about whether Online Dosing was an AECD was out of his “functional area.” [Szailer Tr., at 103:11–16.] When asked about Frank’s comment, “VM lowers their Urea dosing during off cycle event to save fluid (e.g. steady state @ 65 MPG). It is not currently mentioned as an AECD. CHEATERS!”, Zatorski testified that this issue was not within the scope of Frank or Jaffri’s contracts with Chrysler. [Zatorski Tr., at 123:13–20.] None of Jaffri, Zatorski, Szailer, or Frank had experience with or responsibility for AECD disclosures.

243. Dr. Atkinson attempts to rely on statements from these OBD-focused individuals to demonstrate that Online Dosing is a defeat device, yet he does not acknowledge testimony from the same individuals disclaiming any knowledge of an improper use of Online Dosing. For example Dr. Atkinson quotes Jaffri’s statement that, “It’s in the OBD docs to prevent us from emissions cheating in case its discovered, its disclosed in the OBD material at least so it is not going to bite me!” [Atkinson Report, at ¶ 252 (citing FCA-PIRNIK-001416294).] When asked about this comment, Jaffri testified, “I have no idea if they’re doing anything wrong. My understanding is there was nothing done wrong. It was applied properly, and so the cheating comment is really . . . nothing specific.” [Jaffri MDL Tr., at 193:21–25.] In another instance, Dr. Atkinson quoted Zatorski’s statement in a chat with Jaffri that Online Dosing was “essentially a defeat device,” [Atkinson Report, at ¶ 256 (citing FCA-PIRNIK-001416126).]; Dr. Atkinson makes no mention of Zatorski’s testimony that he was not aware of any

intentional wrongdoing, lying, or dishonesty by anyone at VM or Chrysler in connection with the Subject Vehicles. [Zatorski Tr., at 221:10–14.] Szailer, who did not perform any work on the Subject Vehicles, testified that he did not think any information regarding Online Dosing that should have been disclosed to regulators was withheld with respect to the ProMaster vans. [Szailer Tr., at 130:16–25.]

244. Furthermore, these same OBD employees described their chats as unthoughtful conversations without basis in fact. Jaffri in particular testified that the statements used in chat conversations between OBD employees did not reflect a full understanding of Online Dosing or an awareness of wrongdoing. He testified, “These chats generally, there’s a lot of like slang, wisecracks, very unthoughtful writing, especially with Hal [Zatorski]. You know, *I wouldn’t take these IMs to be acknowledgment of actual cheating. It’s more being deflammatory [sic].*” [Jaffri MDL Tr., at 272:10–15 (emphasis added).] When shown his statement to Szailer about including Online Dosing in the OBD documents “to protect us from emissions cheating,” Jaffri testified that this statement “wasn’t very thought through” and that he “didn’t know if there was any emissions cheating.” [Jaffri MDL Tr., at 193:13–22.] Zatorski explained his chat conversations with Jaffri in a similar way: “I’ve known Kass [Jaffri] since 2006, and a lot of things that we exchange in chats that we had never dreamed anybody else would ever see comes out sounding very bad. But it isn’t real. It’s not a scandal. There was no scandal.” [Zatorski Tr., at 106:21–107:1.] Jaffri explained the context of these chat conversations: “these phrases, the cheating and all this, this is . . . like an unconscious bias that a lot of the OBD guys in the industry have around emissions people.” [Jaffri MDL Tr., at 273:6–11.] Dr. Atkinson’s reliance on inflammatory

statements about Online Dosing by OBD-focused individuals ignores that they lacked familiarity with the feature, did not possess experience with emissions regulations, and testified that they were not aware of wrongdoing.

**E. SCR Catalyst Warm-Up Disablement**

245. Dr. Atkinson's opinions and their bases related to the SCR Catalyst Warm-Up Disablement are presented in ¶¶ 272 through 283 of his report.

246. Dr. Atkinson provides no complete description of the function of the SCR Catalyst Warm-Up Disablement calibration feature as it was actually implemented in the Subject Vehicles. Accordingly, without any complete explanation of how the feature works, Dr. Atkinson has provided no adequate basis to conclude that SCR Catalyst Warm-Up Disablement is an AECD or a defeat device. Moreover, it does not appear that Dr. Atkinson has done any technical review or performed any technical scientific/engineering analysis of SCR Catalyst Warm-Up Disablement. Rather, his conclusions appear to be based solely on selected excerpts of EPA filings and emails rather than any discernable methodology.

247. In the absence of internal FCA emails and associated deposition testimony related to this calibration feature, Dr. Atkinson relies on EPA and CARB NOV's and CARB communications to support his opinion rather than his own analysis. [Atkinson Report, at ¶ 279.] Again, in my opinion, Dr. Atkinson has failed to demonstrate that the SCR Catalyst Warm-Up Disablement is a defeat device.

248. I find the first statement in Dr. Atkinson's description of the SCR Warm-Up Catalyst Disablement feature exemplifies his failure to document and describe the function and operation of the features upon which he purports to opine. Dr. Atkinson states, "AECD # 6 is related to *one or more* of the 'rapid heat-up' cold start strategies,"

but then fails to explain how the SCR Catalyst Warm-Up Disablement feature is related to these strategies. [Atkinson Report, at ¶ 272 (emphasis added).]

249. Furthermore, Dr. Atkinson fails to include any discussion about the purpose of the SCR Catalyst Warm-Up Disablement feature. The closest he gets to a discussion about purpose is the statement, “the manner in which the exhaust gases are heated has important implications for engine performance, fuel consumption and emissions, in addition to engine longevity, maintenance and repair.” [Atkinson Report, at ¶ 273.] Dr. Atkinson does not elaborate on the implications of heating exhaust gases for any of those considerations. Moreover, he does not make any statement about which such purpose was in play in the case of the Subject Vehicles.

250. Dr. Atkinson remarks, “*If the intention is to reduce the maximum amount of NOx possible*, it is advantageous to minimize the time that the ATS is outside of its ‘optimal’ temperature window.” [Atkinson Report, at ¶ 273 (emphasis added).] In my opinion, this reflects a fundamental misunderstanding of emission standards; the objective is to comply with the standards used for each emission test cycle, not to reduce as much NOx as possible in all conditions. Once more, Dr. Atkinson misses the point that the emissions are not expected to be and realistically could not be the same in conditions outside emissions test cycles as they are within emissions test cycles.

251. Later in his analysis, Dr. Atkinson states, without citation, that “EPA has come to the same conclusion, determining that AECD # 6 disables the initial exhaust gas heating strategy during off-cycle starting conditions, at temperatures above the Federal Test Procedure (FTP) 75 starting temperature.” [Atkinson Report, at ¶ 275.] He does not address why a calibration feature designed to heat up the SCR catalyst should operate in

starting described as warmer than the FTP-75. Indeed, lacking any further explanation as to the specific conditions underlying this portion of Dr. Atkinson's analysis, he has not demonstrated that a warm-up feature would be required in the first place.

252. Dr. Atkinson's references to distinct AECDs listed in the MY 2014 Application for the CoC provide no further information about the SCR Catalyst Warm-Up Disablement feature. [Atkinson Report, at ¶ 277.] The disclosure of these calibration features as AECDs does not support any assessment of whether the SCR Catalyst Warm-Up Disablement feature constitutes an AECD or defeat device.

253. Dr. Atkinson's report also lacks sufficient detail and analysis to establish that the SCR Catalyst Warm-Up Disablement feature reduced the effectiveness of the emission control system.

254. Dr. Atkinson posits that "[d]isabling a warmup process or procedure that ensures that the ATS reach and maintain a suitable operating temperature range in an expeditious fashion will reduce the effectiveness of that same ATS, especially in this case with respect to NO<sub>x</sub> reduction." [Atkinson Report, at ¶ 274.] This statement obscures the relevant question: does the feature reduce the effectiveness of the *emission control system*? A calibration feature that reduces the role of the ATS does not necessarily reduce the effectiveness of the entire emission control system; Dr. Atkinson once more ignores the interplay between EGR and SCR. He provides no evidence that the SCR Catalyst Warm-Up Disablement reduces the effectiveness of the emission control system, as opposed to just the ATS.

255. Furthermore, as is the case in the rest of his report, Dr. Atkinson provides no data demonstrating that the SCR Catalyst Warm-Up Disablement feature reduces emission control system effectiveness.

256. Similarly to the analysis of emission control effectiveness, Dr. Atkinson's report does not prove that the SCR Catalyst Warm-Up Disablement feature was anything other than necessary to protect the vehicle from damage.

257. In opining that the SCR Catalyst Warm-Up Disablement calibration feature was not necessary to protect the vehicle from damage, Dr. Atkinson offers vague, hypothetical alternatives without specifics as to how those alternatives could be applied to the Subject Vehicles. [Atkinson Report, at ¶ 278.] Dr. Atkinson writes, “[i]f this strategy AECD # 6 was invoked as an engine protection strategy, it begs the question as to why other alternatives for catalyst warm-up were not used . . . this could have been mitigated for example by not using a late fuel injection . . . but rather employing some other direct method of heating.” [Atkinson Report, at ¶ 278.] With respect to the “other” means for achieving sufficient SCR catalyst temperatures, Dr. Atkinson writes, “there are many electrical exhaust heating techniques available, that are able to heat the exhaust gases once they have left the engine – and these do not involve or require the late or ‘post’ injection of fuel into the engine combustion chambers or cylinders.” [Atkinson Report, at ¶ 278.]

258. In making this claim, Dr. Atkinson fails to opine as to whether post injection is the standard method used at the time by manufacturers on diesel engines to increase exhaust gas temperatures or provide any example of a manufacturer that uses

other means of direct exhaust gas heating on commercially available engines or vehicles to support his assertions.

259. In addition, Dr. Atkinson's citations to discussions between CARB and Chrysler concerning a different feature, the Valvetrain Cleaning Routine, provide no information as to whether the SCR Catalyst Warm-Up Disablement feature was itself the result of a design weakness. [Atkinson Report, at ¶ 278 (citing FCA-PIRNIK-001040943).] His references to discussions about an entirely separate topic provide no more support for his conclusion that the SCR Catalyst Warm-Up Disablement feature is a defeat device.

**F. Adaptation**

260. Dr. Atkinson's opinions and their bases related to DEF Dosing Disablement During Adaptation ("Adaptation") are presented in ¶¶ 284 through 317 of his report.

261. Dr. Atkinson provides no complete description of the function of the Adaptation calibration feature as it was actually implemented in the Subject Vehicles. Accordingly, without any complete explanation of how the feature works, Dr. Atkinson has provided no adequate basis to conclude that Adaptation is an AECD or a defeat device. Moreover, it does not appear that Dr. Atkinson has done any technical review or performed any technical scientific/engineering analysis of Adaptation. Rather, his conclusions appear to be based solely on selected excerpts of EPA filings and emails rather than any discernable methodology.

262. In my opinion, Dr. Atkinson fails to demonstrate that Adaptation is an AECD or a defeat device. Further he ignores information that contradicts his positions that can be found in the materials he reviewed



263. At no point does Dr. Atkinson describe with clarity how Adaptation operates, despite his citation to FCA's Responses to EPA's Section 208 Requests as the basis for his understanding of the feature.

264. Dr. Atkinson instead relies on vague descriptions. For example, in ¶ 286 of his report, he notes that "[a]mmonia-based SCR requires a *steady supply* of the reductant ammonia for the NO<sub>x</sub> reaction " [Atkinson Report, at ¶ 286 (emphasis added).] He provides no explanation of what constitutes a "steady supply." In ¶ 287 of his report, Dr. Atkinson remarks, "This latter effect of ammonia 'slip' is undesirable and is to be avoided through the *adequate control* of the DEF injection rate and subsequent chemical and physical process," yet he provides no guidance as to what constitutes "adequate control." [Atkinson Report, at ¶ 287 (emphasis added).]

265. In my opinion, Dr. Atkinson has failed to provide a sufficient technical description of the Adaptation feature to support his conclusion that this feature is an AECD and defeat device.

266. As he does in his analysis of Online Dosing, Dr. Atkinson assumes the purpose of Adaptation is to conserve DEF rather than protect the Subject Vehicles against damage. In my opinion, due to the lack of any independent assessment of the calibrations, emissions, or performance of Adaptation, he has failed to demonstrate the feature was not necessary to protect the vehicle from damage.

267. Without providing any support for his position, Dr. Atkinson appears to imply that a temporary reduction in dosing in order to conserve DEF and meet service refill targets is the purpose of Adaptation: "[i]n general, the control and calibration engineers or practitioners would seek to develop control strategies and engine and ATS

calibrations that minimize DEF consumption under (practically) all conditions. This would be done in order to minimize the DEF tank onboard the vehicle, and for a given size of the DEF tank, to maximize the time interval between required DEF refills.”

[Atkinson Report, at ¶ 289.]

268. Dr. Atkinson fails to provide evidence to support his claim that the purpose of Adaptation was to reduce DEF usage. Further, Dr. Atkinson ignores evidence that FCA had no reason to be concerned about minimizing the size of the DEF tank. For example, Palma testified, “it is my understanding [the Subject Vehicles’ DEF tank] was by far the largest in the industry in light duty.” [Palma Tr., at 227:19–21.] Further, because of the design of the Subject Vehicles, it is unlikely that FCA would have had significant concerns about the refill interval. The DEF tank is located next to the gas tank and can be easily accessed next to the gas cap. In other light-duty diesel vehicles, by contrast, the DEF tank has to be accessed through the trunk. [RBL-15CV07199-PE-000297101, at 90; RBL-15CV07199-PE-000297464, at 47.]

269. Dr. Atkinson appears to recognize the importance of calibrating DEF dosing to ensure that the system will not inject more urea into the SCR catalyst than can be consumed in a chemical reaction at any given time. Injecting too much urea into the SCR system can cause ammonia to “slip[] through the system unreacted”—a phenomenon that Dr. Atkinson characterizes as “undesirable.” [Atkinson Report ¶ 287.]

270. Indeed, as previously noted, EPA also recognizes the need to avoid ammonia slip. When EPA assessed the value of SCR systems as a potential benefit for emission control, EPA cautioned that SCR systems bring unique concerns, including the necessity of “precise control of the quantity of urea injection into the exhaust” because

“too large of a quantity of urea leads to a condition of ‘ammonia slip.’” 64 Fed. Reg. 26142, 26150 (May 13, 1999). The problems associated with overdosing are well recognized and manufacturers are expected to design their emission control systems to prevent ammonia slip.

271. Dr. Atkinson appears to recognize that overdosing can lead to SCR catalyst damage, but appears to question the need for a diagnostic function to identify under-dosing given that “under-dosing of DEF is unlikely to cause any damage to the SCR catalyst.” [Atkinson Report, at ¶ 306.] It is unclear why Dr. Atkinson believes FCA would contend that under-dosing can cause damage to the SCR. In the next sentence of his report, Dr. Atkinson points out that “[u]nder-dosing of DEF will certainly reduce the capacity of the ATS to meet tailpipe-out regulated emissions of NOx.” [Atkinson Report, at ¶ 306.] Indeed, this is one reason why a diagnostic function like SCR Adaptation could be valuable: it allows the vehicle to identify conditions of under-dosing that could potentially lead to increased tailpipe emissions.

272. Dr. Atkinson appears to interpret prior FCA statements about the common usage of Adaptation in the industry as “an attempt to disavow” of the function. [Atkinson Report, at ¶ 307.] Having read the language quoted in Dr. Atkinson’s report, it is unclear why Dr. Atkinson thinks that FCA’s discussion of its own conduct as being in line with general industry practice is an “an attempt to disavow” of the calibration feature.

273. Dr. Atkinson also refers to other unrelated features, including an OBD monitor used to diagnose SCR efficiency and an “SCR adaptation release for both online dosing and load governor dosing control” in European vehicles. [Atkinson Report, at ¶¶ 290–91.] The discussion is not clear about why these functions are referenced and,

indeed, I cannot determine how they are relevant to Adaptation as used in the Subject Vehicles.

**G. Load Governor**

274. Dr. Atkinson's opinions and their bases related to the Load Governor are presented in ¶¶ 318 through 332 of his report.

275. Dr. Atkinson draws a conclusion on the Load Governor calibration feature without providing a complete description of the function of this feature. Accordingly, without any complete explanation of how the feature works, Dr. Atkinson has provided no adequate basis to conclude that the Load Governor is an AECD or a defeat device. It does not appear that Dr. Atkinson has done any technical review or performed any technical scientific/engineering analysis of the Load Governor feature. Rather, his conclusions appear to be based solely on selected excerpts of EPA filings and emails rather than any discernable methodology.

276. In my opinion, Dr. Atkinson fails to demonstrate that the Load Governor is an AECD or a defeat device. In addition, his assessment of the function and operation of the Load Governor analysis is contradicted by information in the materials he reviewed.

277. As an example, Dr. Atkinson states that AECD #8 "occurs subsequent to the initiation or use of AECD #4 (but AECD #8 occurs at other times as well)." [Atkinson Report, at ¶ 319.] This statement is not consistent with the record evidence that the Load Governor is active unless SCR Adaptation is active. Similarly, Dr. Atkinson states that the Load Governor occurs in a sequence with SCR adaptation, unless Online Dosing is triggered. [Atkinson Report, at ¶ 320.] Again, this statement is not consistent with evidence that the Load Governor controls DEF dosing at all times,

unless the SCR adaptation is active. Also, if Online Dosing is triggered, the dosing rate commanded by the Load Governor can only be reduced.

278. Dr. Atkinson states that Load Governor “clearly had significant effects on the Subject Vehicle tailpipe emissions, particularly of NO<sub>x</sub>” and that it “certainly increased tailpipe-out NO<sub>x</sub> emission levels” but he provides no explanation of how the feature impacts emissions in any specific conditions. [Atkinson Report, at ¶ 321.]

279. Further, he also states that the NO<sub>x</sub> emission levels “will certainly be above the levels seen while the vehicle is being operated over the FTP or HWFET cycles, all else being equal.” [Atkinson Report, at ¶ 321.] This statement is unfounded for at least two reasons. *First*, as discussed above Load Governor does not “certainly” increase NO<sub>x</sub> emissions. *Second*, there is no evidence that the Load Governor would cause a Subject Vehicle to run any differently on any of the test cycles than in the real world under the same conditions.

280. Dr. Atkinson also concludes that the Load Governor feature does not satisfy any of the defeat device exclusions. With regard to substantial inclusion on the regulatory cycles, he does not explain why the feature must be present only on FTP or HWFET and not the other cycles. Moreover, he has not shown that the Load Governor feature is not present on those cycles. In fact, the FCA statements contained in the 208 Responses, upon which Dr. Atkinson relies, indicate that the Load Governor may have been active on the US06 and SC03. FCA’s Consolidated Responses to EPA 208 Information Request, dated April 21, 2017, at 143–44 (FCA-PIRNIK-001735197).

281. With regard to the justification against engine damage, based on my review, Dr. Atkinson has failed to disprove that the Load Governor feature protects against vehicle damage to the SCR catalyst caused by pooling.

**H. Reliance on Irrelevant Information for All At-Issue Features**

282. Finally, for all of the above mentioned features, Dr. Atkinson relies on a variety of information that is, in my opinion, not appropriate or relevant to whether a calibration is an AECD or a defeat device. As previously stated, inferences drawn from Orteca's choice to take the Fifth Amendment are not an appropriate basis for conclusions about the compliance of calibration features with emissions requirements. Additionally, Dr. Atkinson's citations to unproven allegations contained in the EPA and CARB NOV's do not provide support for a scientific/engineering assessment of emission control features, given that Dr. Atkinson has not demonstrated any personal knowledge of the bases for these agency statements. Furthermore, as previously stated, Dr. Atkinson has not provided sufficient context to establish, based on a single email, that FCA had "stated policies for disclosure," much less that the use of any of these features were in violation of any stated policy. In my opinion, Dr. Atkinson's repetitive references to these sources of information do not provide support for his opinions concerning AECDs and defeat devices.

**VIII. CALIBRATION FEATURES OPERATING IN COMBINATION**

283. Dr. Atkinson fails to support his conclusion that the "eight undisclosed AECDs also reduced the effectiveness of the emission control system when they were active in combination." [Atkinson Report, at ¶ 333.] Dr. Atkinson has not provided any support for his conclusions concerning the operation of multiple calibration features in

combination. For example, Dr. Atkinson provides no summary of if, when, how, and how frequently any combination of the calibration features operate in combination much less what the impact on emissions is. Dr. Atkinson's recitation of unsupported statements about emissions is not a substitute for his own analysis and cannot form a basis for a conclusion concerning reductions in the effectiveness of the emission control system.

284. Just as he does throughout his analysis of specific calibration features, Dr. Atkinson relies on vague and conclusory statements to reach his conclusions that the calibration features at issue combine to reduce the effectiveness of the emission control system. For example, Dr. Atkinson states, "[t]he operation of [Adaptation] particularly when combined with [the Load Governor], increases emissions of tailpipe NOx under conditions reasonably expected to be encountered in normal vehicle operation and use." [Atkinson Report, at ¶ 336.] Here, as elsewhere in his report, Dr. Atkinson provides no explanation for how he reaches this conclusion and cites no data in support of his assertion that tailpipe emissions increase. He similarly provides no explanation of why he believes and cites no evidence to support that, the "operation of [the Vehicle Speed Corrections], and/or [T\_Engine] may increase the frequency of occurrence of [Adaptation]." [Atkinson Report, at ¶ 336.] In another instance, Dr. Atkinson provides no explanation of why, or data to support his assertion that, "[t]he operation of [Online Dosing] and [the Load Governor], particularly in variable grade and high load conditions, increases emissions of tailpipe NOx under conditions reasonably expected to be encountered in normal vehicle operation and use." [Atkinson Report, at ¶ 337.] Having reviewed Dr. Atkinson's analysis, I cannot find any explanation as to how he reached the conclusions concerning the combined effect of the calibration features discussed above.

285. In a clear example of the use of conclusory statements without support, Dr. Atkinson concludes, “[t]he Subject Vehicles Emitted Higher Levels of NO<sub>x</sub> during Real-World Operation than during Regulatory Testing.” [Atkinson Report, at ¶ 338.] Based on his report, Dr. Atkinson has himself not reviewed either actual emissions data or the performance of the calibration features as observed in the Subject Vehicles. He does not cite any supporting materials in the record.

286. As in other sections, Dr. Atkinson relies on statements contained in the EPA and CARB NOVs to support his conclusions. [Atkinson Report, at ¶¶ 339, 340.] And as is the case elsewhere, Dr. Atkinson simply seems to be adopting the positions of others rather than developing a supporting basis for his own opinions and conclusions. Dr. Atkinson appears to view all statements contained in the NOVs as proven fact, rather than allegations.

287. Additionally, Dr. Atkinson fails to provide specifics about which calibration features he references with his statement, “Operation of *one or more* of the eight undisclosed AECDs, either alone or in combination with each other, results in excess emissions of nitrogen oxides (NO<sub>x</sub>) under various operating conditions that may reasonably be expected to be encountered in normal vehicle operation and use.” [Atkinson Report, at ¶ 339 (emphasis added).] I cannot determine from his report whether Dr. Atkinson claims that all eight calibration features combine to result in excess emissions, whether specific combinations cause excess emissions, or the conditions in which these apparent excess emissions occur.

288. Dr. Atkinson’s own acknowledgment that “neither EPA nor CARB have publicly released the results from their testing of the Subject Vehicles” highlights how



the NOV's do not support his conclusions about excess emissions; he has not seen the results. [Atkinson Report, at ¶ 341.] Dr. Atkinson also lacks any specific knowledge about procedures used for EPA and CARB testing. He claims that "such testing can reasonably be assumed to include both dynamometer-based testing and on-road testing," and that the "dynamometer-based testing can further be reasonably be assumed [*sic*] to include test cycles that are more representative of real-world 'vehicle operation and use.'" [Atkinson Report, at ¶ 341.] He does not explain the basis for his assumptions. It is my opinion that Dr. Atkinson's "assumptions" about the types of testing performed by EPA and CARB are not sufficient support his conclusions. Again, I do not understand how Dr. Atkinson can use testing he has no specific knowledge of as a basis for reaching conclusions about the Subject Vehicles.

289. Dr. Atkinson also relies on a Bosch presentation from July 3, 2014 to draw conclusions about the NO<sub>x</sub> conversion efficiencies of the Subject Vehicles in on-road driving conditions. [Atkinson Report, at ¶¶ 342, 343.] I find his analysis flawed for numerous reasons. *First*, as he does throughout his report, Dr. Atkinson analyzes one specific part of the emission control system without acknowledging the fact that it is a system and it is the overall performance that is of importance. He does not provide information as to how the conversion efficiencies discussed in the presentation impact overall tailpipe emissions, given the potential for EGR-focused calibration features to generate less engine-out NO<sub>x</sub> in the first place.

290. *Second*, Dr. Atkinson cites specific slides without any accompanying explanation of the content. He references slide 39 to show NO<sub>x</sub> conversion efficiencies in the "real-world," but he does not explain what the graph actually shows. Given the

lack of context for the document cited, I cannot assess whether this Bosch presentation provides relevant information about the Subject Vehicles sold to customers or test vehicles with interim calibrations. In another example, he references slide 19 for the statement, “[r]eal road driving shows that Chrysler did not optimize the EO emissions and Dosing Strategy for off cycle driving.” [Atkinson Report, at ¶ 344 (citing RBL-15CV07199-PE-000025374).] Yet slide 19 appears to show that the Subject Vehicles produced *less* engine-out NOx and used *more* DEF for dosing than the Audi vehicle used as a comparison. Moreover, Dr. Atkinson provides no further information about the source of the data or what Bosch meant by “Chrysler did not optimize the EO emissions and Dosing Strategy.”

291. *Third*, Dr. Atkinson again uses assumptions to generate equations that fit his analysis of the emissions of the Subject Vehicles, in contrast to an actual examination of emissions data. He relies on a “notional NOx reduction efficiency” and the engine-out NOx of one vehicle on slide 19 to state, “in order to reduce the WK MY 14 NOx emissions on the ‘FH Drive Cycle’ to Tier 2 Bin 5 levels would require an average NOx conversion efficiency of over 96% along with the assurance DEF was being injected in requisite quantities to affect that level of conversion.” [Atkinson Report, at ¶ 344.] Dr. Atkinson does not define what the “FH Drive Cycle” is, or explain how it compares to the emissions test cycles in the Federal Test Procedures or why he would expect the emissions during operation over this cycle to be compared to the Tier 2 Bin 5 standard. He does not explain why he selected a “notional NOx reduction efficiency” of 90%. Finally, Dr. Atkinson does not explain how he can infer the overall emissions

performance of the Subject Vehicles from emission data from the undocumented operation of a single vehicle.

292. I further cannot find a cogent explanation of why Dr. Atkinson believes that the Bosch presentation supports his conclusion about the operation of the calibration features in combination. He writes, “[t]hese NOx conversion efficiencies, while achievable, would require that none of the AECDs 1 through 8 that deleteriously affect the production of NOx emissions, or that deleteriously affect the reduction of NOx emissions, be invoked or initiated.” [Atkinson Report, at ¶ 345.] This statement both acknowledges that Dr. Atkinson cannot infer the NOx conversion efficiencies observed in the field from the Bosch presentation and highlights how he has failed to explain how specific combinations of specific calibration features reduce the effectiveness of the emission control system.

## **IX. ISSUES WITH ANALYSIS OF POST-VW CORRESPONDENCE**

293. Dr. Atkinson asserts that his conclusions concerning specific calibration features “are further supported by findings and conclusion [*sic*] resulting from the investigations of the Subject Vehicles conducted by the EPA and Bosch.” [Atkinson Report, at ¶ 346.] In ¶¶ 347 through 388, Dr. Atkinson recites emails and correspondence following the Volkswagen matter. Throughout this section, he lists statements about press communications, non-Subject Vehicles, and a range of other topics that provide no basis for analyzing specific calibration features under the AECD and defeat device regulations. In my opinion, Dr. Atkinson’s recitation of communications following the discovery of the Volkswagen matter do not support any of his conclusions concerning the compliance of the Subject Vehicles with emissions regulations.

**A. EPA Investigation Analysis**

294. Dr. Atkinson cites several communications about public statements from FCA in response to media inquiries following the Volkswagen scandal. I do not see how these emails, without specific reference to the Subject Vehicles, relate to Dr. Atkinson's opinion concerning compliance with emissions regulations. For example, Dr. Atkinson cites Sergio Marchionne's statement to Gualberto Ranieri, "[a]re you out of your goddam mind? . . . [y]ou should be fired for such stupidity." [Atkinson Report, at ¶ 349 (citing FCA-PIRNIK-001624122).] It is unclear how this discussion about FCA's approach to public statements relates to the features at issue on the Subject Vehicles.

295. In another example, Dr. Atkinson references an email from Mazure to Morrie Lee, "Bob Lee already declared in the press no defeat devices. Don't wait for each one to be vetted individually." [Atkinson Report, at ¶ 351 (citing FCA-PIRNIK-001645644).] I do not see how an email about submitting an AECD list for a different vehicle after the period during which the Subject Vehicles were certified provides relevant information to Dr. Atkinson's analysis of calibration features used in the Subject Vehicles.

296. Vague and unsupported statements also permeate Dr. Atkinson's description of the post-VW investigation. For example, Dr. Atkinson writes, "EPA request an A2L file [*sic*] is an unusual and very significant step," yet he provides no information as to whether other manufacturers faced similar requests, or as to why he believes such a request is "significant." [Atkinson Report, at ¶ 356.] Similarly, Dr. Atkinson states, "It is unusual for the EPA to prohibit a manufacturer from observing the testing of its vehicles for emissions compliance," but he does not state how he determined such an action is unusual or what experience he has to make such a

determination. [Atkinson Report, at ¶ 356.] Similarly, Dr. Atkinson expounds at length upon a November 30, 2015 email from Morrie Lee. He describes why EPA chose to run “‘traditional 2<sup>nd</sup> bag’ cycles” without any basis for his assumption about what EPA was interested in. Furthermore, he states, “EPA told FCA that its vehicles were in violation of EPA regulations” without any specific citation. [Atkinson Report, at ¶ 357.] Throughout this section of his report, Dr. Atkinson alternates between quoting emails without additional context and making conclusory statements without any citation to the materials. Again, this appears to have been necessary because Dr. Atkinson didn’t perform his own independent scientific/engineering analysis.

297. On multiple occasions, Dr. Atkinson cites statements describing ongoing discussions about *potential* regulatory concerns as if they were definitive conclusions from EPA or CARB. For example, Dr. Atkinson writes, “EPA told Lee that the performance of FCA’s vehicles in these tests indicated that a defeat device existed . . . .” [Atkinson Report, at ¶ 358 (citing FCA-PIRNIK-001649309).] However, Lee states in his email, “[d]isabling or reducing certain emiss[ion] control systems outside of the traditional tests *potentially* indicates a defeat device.” [Atkinson Report, at ¶ 358 (citing FCA-PIRNIK-001649309).] In the next paragraph, Dr. Atkinson cites the statement from Vaughn Burns, “. . . they are concerned that our strategy *may* constitute a defeat device.” [Atkinson Report, at ¶ 359 (citing FCA-PIRNIK-001649309).] These statements do not provide a basis for concluding that there *are* defeat devices in the Subject Vehicles.

298. In addition, Dr. Atkinson inexplicably fails to address or credit FCA’s responses to the EPA’s allegations. [FCA-PIRNIK-001652234.]

299. Overall, Dr. Atkinson relies on emails related to the regulatory environment following the Volkswagen scandal as support for his analysis of the calibration features of the Subject Vehicles. Here, as elsewhere in his report, Dr. Atkinson makes frequent references to non-technical email correspondence as the basis for his opinions apparently because he has failed to perform an actual examination of the calibrations, generate or review emissions data, or to observe and document the actual function of the calibration features on the Subject Vehicles.

**B. Bosch Investigation Analysis**

300. Dr. Atkinson also discusses correspondence between FCA and Bosch concerning the compliance of FCA vehicles with regulations in the aftermath of the Volkswagen scandal. In my opinion, his discussion of correspondence between FCA and Bosch executives does not provide a basis for opinions concerning whether the Subject Vehicles comply with the emissions regulations.

301. Dr. Atkinson's report references discussions and questions raised by Bosch to infer that they were related to an analysis of calibration features of the Subject Vehicles. For example, he cites Bob Lee's deposition transcript to show that Bob Lee attended a meeting with Bosch executives, but he does not mention Bob Lee's testimony indicating that the primary focus of the meeting was not in fact the emission control strategies of the Subject Vehicles: "I just recall it being very European focused." [B. Lee Tr., at 159:14–15.]

302. He also cites a February 19, 2016 letter from Bosch stating it "raised questions whether several functions in certain of FCA's diesel vehicles 'comply with emission laws and regulations.'" [Atkinson Report, at ¶ 390 (citing FCA-PIRNIK-001625921).] Bosch's letter references questions about compliance, which is not proof

of non-compliance. Bosch stated that T\_Engine “*appears* to enable different behavior” and that “[v]ariation in dosing strategies *appears* to require AECD disclosure.” [FCA-PIRNIK-001625923 (emphasis added).] This is again consistent with Dr. Atkinson’s practice of presenting unproven allegations without discussion of context or bases for the statements used as conclusions in his report. These types of communications do not provide insight with respect to the features at issue on the Subject Vehicles and do not provide a proper basis for opinions concerning emissions compliance.

303. Dr. Atkinson fails to provide any cogent explanation of why much of the material he cites in this section supports his conclusions regarding the scientific/engineering of the Subject Vehicles. For example, he cites a response from Aldo Marangoni of FCA “defending the features identified by Bosch, stating that they were all necessary for the protection of the engine.” [Atkinson Report, at ¶ 393 (citing FCA-PIRNIK-001633462).] Having mentioned Marangoni’s letter, Dr. Atkinson provides no analysis or opinion regarding whether these features were necessary for engine protection.

304. Here, as elsewhere in his report, Dr. Atkinson quotes language discussing vehicles other than the Subject Vehicles. He cites a letter in which apparently “Bosch informed FCA, among other things, that as part of the KBA’s ongoing investigation into Bosch and FCA, Bosch would disclose the problematic features on the Fam. B Vehicles.” [Atkinson Report, at ¶ 394 (citing FCA-PIRNIK-001633436).] The Subject Vehicles are not included in the Family B vehicles, which I understand are not certified or sold in the U.S. [B. Lee Tr., at 181:1.]

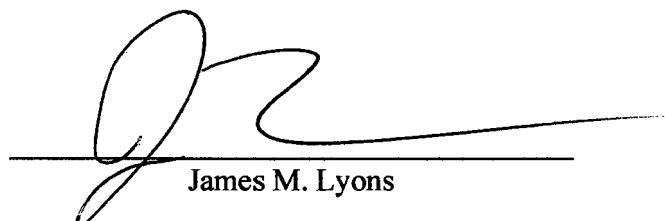
305. In addition, Dr. Atkinson inexplicably fails to address or credit FCA's responses to Bosch's allegations. [FCA-PIRNIK-001633462.]

## **X. CONCLUSION**

For the foregoing reasons, I conclude that Dr. Atkinson has failed to demonstrate that FCA's Subject Vehicles were not in compliance with EPA and CARB emissions regulations. Dr. Atkinson fails to support the conclusions in his report using any engineering or scientific analysis or discernable methodology. He claims that a number of the calibration features in the Subject Vehicles are AECDs and defeat devices. However, he does not appear to have performed any sort of assessment of the functionality, purpose, enablement conditions, or operation of these features. He rather relies instead on anecdotal evidence, selections of public filings or of internal FCA correspondence, and of the unverified opinions of others in coming to these conclusions, and frequently disregards or fails to account for evidence contradicting his assumptions and conclusions. This methodology is insufficient to ground a finding that any of the at-issue calibration features are AECDs or defeat devices. As a result, Dr. Atkinson has not demonstrated that FCA's statements concerning its compliance with applicable emissions regulations were false or misleading.

\* \* \* \* \*

September 26, 2018



James M. Lyons



# Attachment A

## James Lyons

*Principal Consultant – Sacramento Office*



### AREAS OF SPECIALIZATION

- New Vehicle and Engine Certification
- Development and Assessment of Mobile Source Emission Control Strategies
- Development and Assessment of Strategies for Reduction of Criteria Pollutant and GHG Emissions Related to Transportation Fuels – Including Alternative Fuels and Fuel Additives
- Design and Implementation of Vehicle Testing Programs and Data Analysis
- Enforcement and Litigation Support Related to Mobile Sources and Transportation Fuels
- Intellectual Property Disputes Involving Engine and Emission Control System Design, Function, and Novelty
- Tracking and Reporting of California Air Resources Board Activities Related to the Regulation of Mobile Source Emissions and Transportation Fuels
- Emission Inventories and Quantification

### EDUCATION

M.S., Chemical Engineering, University of California, Los Angeles

B.S., Cum Laude, Chemistry, University of California, Irvine

### AFFILIATIONS

Society of Automotive Engineers  
American Chemical Society

### TECHNICAL EXPERTISE

**Fuels Regulations.** Managed numerous projects related to assessments of Low Carbon Fuel Standard (LCFS) regulations adopted or being prepared by California and a number of other jurisdictions. Has also been involved in the review of reformulated gasoline and diesel fuel regulations, including the federal RFS 1, RFS 2, and Tier 3 regulations.

**Mobile Source Emissions Control.** Participated in the design and evaluation of mobile source emission control measures and emission control systems; development of mobile source emissions modeling software; development of mobile source emission inventories; design and management of supporting field and laboratory studies; and the design and evaluation of vehicle emissions inspection and maintenance programs. Mobile source categories include on- and off-road vehicles, locomotives, marine vessels, and aircraft. Directly involved in assessing changes in vehicle technology required to comply

### SUMMARY OF EXPERIENCE

A Principal Consultant and head of Trinity's Mobile Source and Fuels team, Mr. Lyons has extensive experience related to fuels issues and emissions, including the emission impacts of changes in gasoline and diesel fuel composition and substitution of alternative fuels for petroleum-based fuels. Specific projects have required work on issues related to the emissions impacts of changes in gasoline and diesel fuel as well as compliance with California Air Resources Board (CARB) and U.S. EPA regulations related to gasoline and diesel fuel properties and specifications, assessment of costs and benefits of alternative fuels and alternatively fueled vehicles, and direct involvement in analyses of issues related to CARB and EPA fuels regulations, including the Renewable Fuel Standards (RFS) and Low Carbon Fuel Standards. He has also provided expert services in fuels-related litigations.

Additional responsibilities include oversight and execution of complex analyses of the emission benefits, costs, and cost-effectiveness of mobile source air pollution control measures. Mr. Lyons has developed particular expertise with respect to the assessment of control measures involving accelerated vehicle/engine retirement programs; the deployment of advanced emission control systems, including electric fuel cell and hybrid technologies for on- and non-road gasoline- and diesel-powered vehicles and engines, as well as on-vehicle evaporative and refueling emission control systems. Other duties include assessments of the activities of federal, state, and local regulatory agencies with respect to motor vehicle emissions and reports to clients regarding those activities. Mr. Lyons has extensive litigation experience related to air quality and fuels including gasoline property and renewable fuels regulations, product liability, and intellectual property issues.

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with federal, California, and Mexican new-vehicle greenhouse gas and fuel economy standards for light-duty vehicles.

**New Vehicle and Engine Certification.** Directly participated in and managed efforts related to obtaining U.S. EPA and California Air Resources Board certification for new engines and vehicles, including activities related to agency enforcement actions and on-going compliance requirements.

**Air Quality Planning and Strategy Development.** Has been involved in the development and critical assessment of mobile source and transportation fuels elements of State Implementation Plans.

**Emission Control System Design and Evaluation.** Provided support for the design and assessment of alternative emission control techniques, and for troubleshooting control system issues. Issues assessed have include VOC, CO, NO<sub>x</sub>, SO<sub>x</sub>, and PM control systems in various applications.

**Expert Witness Services.** Presented testimony and served as an expert or consulting expert on numerous cases in federal and state courts involving issues related to government regulations affecting mobile source certifications, in-use emissions issues, fuel regulations, intellectual property issues related to emission controls and fuels, and product liability.

## **EMPLOYMENT HISTORY**

2014 – Present Trinity Consultants  
1991 – 2014 Sierra Research  
1985 – 1991 California Air Resources Board

## **SELECTED PUBLICATIONS (AUTHOR OR CO-AUTHOR)**

"Follow-On Study of Transportation Fuel Life Cycle Analysis: Review of Current CARB and EPA Estimates of Land Use Change (LUC) Impacts," Sierra Research Report No. SR2016-08-01, prepared for the Coordinating Research Council, CRC Project No. E-88-3b, August 2016.

"Review of EPA's MOVES2014 Model," Sierra Research Report No. SR2016-07-01, prepared for the Coordinating Research Council, CRC Project No. E-101, July 2016.

"Development of Vehicle Attribute Forecasts for the '2015 Integrated Energy Policy Report,'" prepared for the California Energy Commission, February 5, 2016.

"Sensitivity Analysis of Key Assumptions on Energy and Environmental Economics (E3) 'California Pathways GHG Scenario Results' as They Pertain to the Light-Duty Vehicle Sector," prepared for the Alliance of Automobile Manufacturers, October 2015.

"Review of Energy and Environmental Economics (E3) 'California Pathways GHG Scenario Results' as They Pertain to the Light-Duty Vehicle Sector," prepared for the Alliance of Automobile Manufacturers, October 2015.

"International Light-Duty Vehicle Fuel Economy and Greenhouse Gas Standards Analysis," prepared for the Alliance of Automobile Manufacturers, July 2015.

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*Principal Consultant — Sacramento Office*

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"Quantifying Aircraft Lead Emissions at Airports," prepared for the Transportation Research Board, Airport Cooperative Research Program, October 2014.

"Best Practices Guidebook for Preparing Lead (Pb) Emission Inventories from Piston-Powered Aircraft," prepared for the Transportation Research Board, Airport Cooperative Research Program, October 2014.

"Development of Vehicle Attribute Forecasts for 2013 IEPR," Sierra Research Report No. SR2014-01-01, prepared for the California Energy Commission, January 2014.

"Assessment of the Emission Benefits of U.S. EPA's Proposed Tier 3 Motor Vehicle Emission and Fuel Standards," Sierra Research Report No. SR2013-06-01, prepared for the American Petroleum Institute, June 2013.

"Development of Inventory and Speciation Inputs for Ethanol Blends," Sierra Research Report No. SR2012-05-01, prepared for the Coordinating Research Council, Inc. (CRC), May 2012.

"Review of CARB Staff Analysis of 'Illustrative' Low Carbon Fuel Standard (LCFS) Compliance Scenarios," Sierra Research Report No. SR2012-02-01, prepared for the Western States Petroleum Association, February 20, 2012.

"Review of CARB On-Road Heavy-Duty Diesel Emissions Inventory," Sierra Research Report No. SR2010-11-01, prepared for The Ad Hoc Working Group, November 2010.

"Identification and Review of State/Federal Legislative and Regulatory Changes Required for the Introduction of New Transportation Fuels," Sierra Research Report No. SR2010-08-01, prepared for the American Petroleum Institute, August 2010.

"Technical Review of EPA Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis for Non-GHG Pollutants," Sierra Research Report No. SR2010-05-01, prepared for the American Petroleum Institute, May 2010.

"Effects of Gas Composition on Emissions from Heavy-Duty Natural Gas Engines," Sierra Research Report No. SR2010-02-01, prepared for the Southern California Gas Company, February 2010.

"Effects of Gas Composition on Emissions from a Light-Duty Natural Gas Vehicle," Sierra Research Report No. SR2009-11-01, prepared for the Southern California Gas Company, November 2009.

"Technical Review of 2009 EPA Draft Regulatory Impact Analysis for Non-GHG Pollutants Due to Changes to the Renewable Fuel Standard," Sierra Research Report No. SR2009-09-01, prepared for the American Petroleum Institute, September 2009.

"Effects of Vapor Pressure, Oxygen Content, and Temperature on CO Exhaust Emissions," Sierra Research Report No. 2009-05-03, prepared for the Coordinating Research Council, May 2009.

"Technical Review of 2007 EPA Regulatory Impact Analysis Methodology for the Renewable Fuels Standard," Sierra Research Report No. 2008-09-02, prepared for the American Petroleum Institute, September 2008.

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"Impacts of MMT Use in Unleaded Gasoline on Engines, Emission Control Systems, and Emissions," Sierra Research Report No. 2008-08-01, prepared for McMillan Binch Mendelsohn LLP, Canadian Vehicle Manufacturers' Association, and Association of International Automobile Manufacturers of Canada, August 2008.

"Attachment to Comments Regarding the NHTSA Proposal for Average Fuel Economy Standards Passenger Cars and Light Trucks Model Years 2011-2015, Docket No. NHTSA-2008-0089," Sierra Research Report No. SR2008-06-01, prepared for the Alliance of Automobile Manufacturers, June 2008.

"Evaluation of California Greenhouse Gas Standards and Federal Energy Independence and Security Act – Part 1: Impacts on New Vehicle Fuel Economy," SAE Paper No. 2008-01-1852, Society of Automotive Engineers, 2008.

"Basic Analysis of the Cost and Long-Term Impact of the Energy Independence and Security Act Fuel Economy Standards," Sierra Research Report No. SR 2008-04-01, April 2008.

"The Benefits of Reducing Fuel Consumption and Greenhouse Gas Emissions from Light-Duty Vehicles," SAE Paper No. 2008-01-0684, Society of Automotive Engineers, 2008.

"Assessment of the Need for Long-Term Reduction in Consumer Product Emissions in South Coast Air Basin," Sierra Research Report No. 2007-09-03, prepared for the Consumer Specialty Products Association, September 2007.

"Summary of Federal and California Subsidies for Alternative Fuels," Sierra Research Report No. SR2007-04-02, prepared for the Western States Petroleum Association, April 2007.

"Analysis of IRTA Report on Water-Based Automotive Products," Sierra Research Report No. SR2006-08-02, prepared for the Consumer Specialty Projects Association and Automotive Specialty Products Alliance, August 2006.

"Evaluation of Pennsylvania's Implementation of California's Greenhouse Gas Regulations on Criteria Pollutants and Precursor Emissions," Sierra Research Report No. SR2006-04-01, prepared for Alliance of Automobile Manufacturers, April 12, 2006.

"Evaluation of New Jersey's Adoption of California's Greenhouse Gas Regulations on Criteria Pollutants and Precursor Emissions," Sierra Research Report No. SR2005-09-03, prepared for the Alliance of Automobile Manufacturers, September 30, 2005.

"Evaluation of Vermont's Adoption of California's Greenhouse Gas Regulations on Criteria Pollutants and Precursor Emissions," Sierra Research Report No. SR2005-09-02, prepared for the Alliance of Automobile Manufacturers, September 19, 2005.

"Assessment of the Cost-Effectiveness of Compliance Strategies for Selected Eight-Hour Ozone NAAQS Nonattainment Areas," Sierra Research Report No. SR2005-08-04, prepared for the American Petroleum Institute, August 30, 2005.

"Evaluation of Connecticut's Adoption of California's Greenhouse Gas Regulations on Criteria Pollutants and Precursor Emissions," Sierra Research Report No. SR2005-08-03, prepared for the Alliance of Automobile Manufacturers, August 26, 2005.

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"Evaluation of New York's Adoption of California's Greenhouse Gas Regulations On Criteria Pollutants and Precursor Emissions," Sierra Research Report No. SR2005-07-04, prepared for the Alliance of Automobile Manufacturers, July 14, 2005.

"Review of MOVES2004," Sierra Research Report No. SR2005-07-01, prepared for the Alliance of Automobile Manufacturers, July 11, 2005.

"Review of Mobile Source Air Toxics (MSAT) Emissions from On-Highway Vehicles: Literature Review, Database, Development, and Recommendations for Future Studies," Sierra Research Report No. SR2005-03-01, prepared for the American Petroleum Institute, March 4, 2005.

"The Contribution of Diesel Engines to Emissions of ROG, NOx, and PM2.5 in California: Past, Present, and Future," Sierra Research Report No. SR2005-02-01, prepared for Diesel Technology Forum, February 2005.

"Fuel Effects on Highway Mobile Source Air Toxics (MSAT) Emissions," Sierra Research Report No. SR2004-12-01, prepared for the American Petroleum Institute, December 23, 2004.

"Review of the August 2004 Proposed CARB Regulations to Control Greenhouse Gas Emissions from Motor Vehicles: Cost Effectiveness for the Vehicle Owner or Operator – Appendix C to the Comments of The Alliance of Automobile Manufacturers," Sierra Research Report No. SR2004-09-04, prepared for the Alliance of Automobile Manufacturers, September 2004.

"Emission and Economic Impacts of an Electric Forklift Mandate," Sierra Research Report No. SR2003-12-01, prepared for National Propane Gas Association, December 12, 2003.

"Reducing California's Energy Dependence," Sierra Research Report No. SR2003-11-03, prepared for Alliance of Automobile Manufacturers, November 25, 2003.

"Evaluation of Fuel Effects on Nonroad Mobile Source Air Toxics (MSAT) Emissions: Literature Review, Database Development, and Recommendations for Future Studies," Sierra Research Report No. SR2003-10-01, prepared for American Petroleum Institute, October 3, 2003.

"Review of Current and Future CO Emissions from On-Road Vehicles in Selected Western Areas," Sierra Research Report No. SR03-01-01, prepared for the Western States Petroleum Association, January 2003.

"Review of CO Compliance Status in Selected Western Areas," Sierra Research Report No. SR02-09-04, prepared for the Western States Petroleum Association, September 2002.

"Impacts Associated With the Use of MMT as an Octane Enhancing Additive in Gasoline – A Critical Review", Sierra Research Report No. SR02-07-01, prepared for Canadian Vehicle Manufacturers Association and Association of International Automobile Manufacturers of Canada, July 24, 2002.

"Critical Review of 'Safety Oversight for Mexico-Domiciled Commercial Motor Carriers, Final Programmatic Environmental Assessment', Prepared by John A Volpe Transportation Systems Center, January 2002," Sierra Research Report No. SR02-04-01, April 16, 2002.

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"Critical Review of the Method Used by the South Coast Air Quality Management District to Establish the Emissions Equivalency of Heavy-Duty Diesel- and Alternatively Fueled Engines", Sierra Research Report No. SR01-12-03, prepared for Western States Petroleum Association, December 21, 2001.

"Review of U.S. EPA's Diesel Fuel Impact Model", Sierra Research Report No. SR01-10-01, prepared for American Trucking Associations, Inc., October 25, 2001.

"Operation of a Pilot Program for Voluntary Accelerated Retirement of Light-Duty Vehicles in the South Coast Air Basin," Sierra Research Report No. SR01-05-02, prepared for California Air Resources Board, May 2001.

"Comparison of Emission Characteristics of Advanced Heavy-Duty Diesel and CNG Engines," Sierra Report No. SR01-05-01, prepared for Western States Petroleum Association, May 2001.

"Analysis of Southwest Research Institute Test Data on Inboard and Sterndrive Marine Engines," Sierra Report No. SR01-01-01, prepared for National Marine Manufacturers Association, January 2001.

"Institutional Support Programs for Alternative Fuels and Alternative Fuel Vehicles in Arizona: 2000 Update," Sierra Report No. SR00-12-04, prepared for Western States Petroleum Association, December 2000.

"Real-Time Evaporative Emissions Measurement: Mid-Morning Commute and Partial Diurnal Events," SAE Paper No. 2000-01-2959, October 2000.

"Evaporative Emissions from Late-Model In-Use Vehicles," SAE Paper No. 2000-01-2958, October 2000.

"A Comparative Analysis of the Feasibility and Cost of Compliance with Potential Future Emission Standards for Heavy-Duty Vehicles Using Diesel or Natural Gas," Sierra Research Report No. SR00-02-02, prepared for Californians For a Sound Fuel Strategy, February 2000.

"Critical Review of the Report Entitled 'Economic Impacts of On Board Diagnostic Regulations (OBD II)' Prepared by Spectrum Economics," Sierra Research Report No. SR00-01-02, prepared for the Alliance of Automobile Manufacturers, January 2000.

"Potential Evaporative Emission Impacts Associated with the Introduction of Ethanol-Gasoline Blends in California," Sierra Research Report No. SR00-01-01, prepared for the American Methanol Institute, January 2000.

"Evaporative Emissions from Late-Model In-Use Vehicles," Sierra Research Report No. SR99-10-03, prepared for the Coordinating Research Council, October 1999.

"Investigation of Sulfur Sensitivity and Reversibility in Late-Model Vehicles," SAE Paper No. 1999-01-3676, August 1999.

"Future Diesel-Fueled Engine Emission Control Technologies and Their Implications for Diesel Fuel Properties," Sierra Research Report No. SR99-08-01, prepared for the American Petroleum Institute, August 1999.



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"Analysis of Compliance Feasibility under Proposed Tier 2 Emission Standards for Passenger Cars and Light Trucks," Sierra Research Report No. SR99-07-02, July 1999.

"Comparison of the Properties of Jet A and Diesel Fuel," Sierra Research Report No. SR99-02-01, prepared for Pillsbury Madison and Sutro, February 1999.

"Investigation of Sulfur Sensitivity and Reversibility in Late-Model Vehicles," Sierra Research Report No. SR98-12-02, prepared for the American Petroleum Institute, December 1998.

"Analysis of New Motor Vehicle Issues in the Canadian Government's Foundation Paper on Climate Change – Transportation Sector," Sierra Research Report No. SR98-12-01, prepared for the Canadian Vehicle Manufacturers Association, December 1998.

"Investigation of the Relative Emission Sensitivities of LEV Vehicles to Gasoline Sulfur Content - Emission Control System Design and Cost Differences," Sierra Research Report No. SR98-06-01, prepared for the American Petroleum Institute, June 1998.

"Costs, Benefits, and Cost-Effectiveness of CARB's Proposed Tier 2 Regulations for Handheld Equipment Engines and a PPEMA Alternative Regulatory Proposal," Sierra Research Report No. SR98-03-03, prepared for the Portable Power Equipment Manufacturers Association, March 1998.

"Analysis of Diesel Fuel Quality Issues in Maricopa County, Arizona," Sierra Research Report No. SR97-12-03, prepared for the Western States Petroleum Association, December 1997.

"Potential Impact of Sulfur in Gasoline on Motor Vehicle Pollution Control and Monitoring Technologies," prepared for Environment Canada, July 1997.

"Analysis of Mid- and Long-Term Ozone Control Measures for Maricopa County," Sierra Research Report No. SR96-09-02, prepared for the Western States Petroleum Association, September 9, 1996.

"Technical and Policy Issues Associated with the Evaluation of Selected Mobile Source Emission Control Measures in Nevada," Sierra Research Report No. SR96-03-01, prepared for the Western States Petroleum Association, March 1996.

"Cost-Effectiveness of Stage II Vapor Recovery Systems in the Lower Fraser Valley," Sierra Research Report No. SR95-10-05, prepared for the Province of British Columbia Ministry of Environment Lands and Parks and the Greater Vancouver Regional District, October 1995.

"Cost of Stage II Vapor Recovery Systems in the Lower Fraser Valley," Sierra Research Report No. SR95-10-04, prepared for the Province of British Columbia Ministry of Environment Lands and Parks and the Greater Vancouver Regional District, October 1995.

"A Comparative Characterization of Gasoline Dispensing Facilities With and Without Vapor Recovery Systems," Sierra Research Report No. SR95-10-01, prepared for the Province of British Columbia Ministry of Environment Lands and Parks, October 1995.

"Potential Air Quality Impacts from Changes in Gasoline Composition in Arizona," Sierra Research Report No. SR95-04-01, prepared for Mobil Corporation, April 1995.



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"Vehicle Scrappage: An Alternative to More Stringent New Vehicle Standards in California," Sierra Research Report No. SR95-03-02, prepared for Texaco, Inc., March 1995.

"Evaluation of CARB SIP Mobile Source Measures," Sierra Research Report No. SR94-11-02, prepared for Western States Petroleum Association, November 1994.

"Reformulated Gasoline Study," prepared by Turner, Mason & Company, DRI/McGraw-Hill, Inc., and Sierra Research, Inc., for the New York State Energy Research and Development Authority, Energy Authority Report No. 94-18, October 1994.

"Phase II Feasibility Study: Heavy-Duty Vehicle Emissions Inspection Program in the Lower Fraser Valley," Sierra Research Report No. SR94-09-02, prepared for the Greater Vancouver Regional District, September 1994.

"Cost-Effectiveness of Mobile Source Emission Controls from Accelerated Scrappage to Zero Emission Vehicles," Paper No. 94-TP53.05, presented at the 87th Annual Meeting of the Air and Waste Management Association, Cincinnati, OH, June 1994.

"Investigation of MOBILE5a Emission Factors, Assessment of I/M Program and LEV Program Emission Benefits," Sierra Research Report No. SR94-06-05, prepared for American Petroleum Institute, June 1994.

"Cost-Effectiveness of the California Low Emission Vehicle Standards," SAE Paper No. 940471, 1994.

"Meeting ZEV Emission Limits Without ZEVs," Sierra Research Report No. SR94-05-06, prepared for Western States Petroleum Association, May 1994.

"Evaluating the Benefits of Air Pollution Control - Method Development and Application to Refueling and Evaporative Emissions Control," Sierra Research Report No. SR94-03-01, prepared for the American Automobile Manufacturers Association, March 1994.

"The Cost-Effectiveness of Further Regulating Mobile Source Emissions," Sierra Research Report No. SR94-02-04, prepared for the American Automobile Manufacturers Association, February 1994.

"Searles Valley Air Quality Study (SVAQS) Final Report," Sierra Research Report No. SR94-02-01, prepared for North American Chemical Company, February 1994.

"A Comparative Study of the Effectiveness of Stage II Refueling Controls and Onboard Refueling Vapor Recovery," Sierra Research Report No. SR93-10-01, prepared for the American Automobile Manufacturers Association, October 1993.

"Evaluation of the Impact of the Proposed Pole Line Road Overcrossing on Ambient Levels of Selected Pollutants at the Calgene Facilities," Sierra Research Report No. SR93-09-01, prepared for the City of Davis, September 1993.

"Leveling the Playing Field for Hybrid Electric Vehicles: Proposed Modifications to CARB's LEV Regulations," Sierra Research Report No. SR93-06-01, prepared for the Hybrid Vehicle Coalition, June 1993.

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"Size Distributions of Trace Metals in the Los Angeles Atmosphere," *Atmospheric Environment*, Vol. 27B, No. 2, pp. 237-249, 1993.

"Preliminary Feasibility Study for a Heavy-Duty Vehicle Emissions Inspection Program in the Lower Fraser Valley Area," Sierra Research Report No. 92-10-01, prepared for the Greater Vancouver Regional District, October 1992.

"Development of Mechanic Qualification Requirements for a Centralized I/M Program," SAE Paper No. 911670, 1991.

"Cost-Effectiveness Analysis of CARB's Proposed Phase 2 Gasoline Regulations," Sierra Research Report No. SR91-11-01, prepared for the Western States Petroleum Association, November 1991.

"Origins and Control of Particulate Air Toxics: Beyond Gas Cleaning," in Proceedings of the Twelfth Conference on Cooperative Advances in Chemical Science and Technology, Washington, D.C., October 1990.

"The Effect of Gasoline Aromatics on Exhaust Emissions: A Cooperative Test Program," SAE Paper No. 902073, 1990.

"Estimation of the Impact of Motor Vehicles on Ambient Asbestos Levels in the South Coast Air Basin," Paper No. 89-34B.7, presented at the 82nd Annual Meeting of the Air and Waste Management Association, Anaheim, CA, June 1989.

"Benzene/Aromatic Measurements and Exhaust Emissions from Gasoline Vehicles," Paper No. 89-34B.4, presented at the 82nd Annual Meeting of the Air and Waste Management Association, Anaheim, CA, June 1989.

"The Impact of Diesel Vehicles on Air Pollution," presented at the 12th North American Motor Vehicle Emissions Control Conference, Louisville, KY, April 1988.

"Exhaust Benzene Emissions from Three-Way Catalyst-Equipped Light-Duty Vehicles," Paper No. 87-1.3, presented at the 80th Annual Meeting of the Air Pollution Control Association, New York, NY, June 1987.

"Trends in Emissions Control Technologies for 1983-1987 Model-Year California-Certified Light-Duty Vehicles," SAE Paper No. 872164, 1987.

# Attachment B

# **CVS News**

## **California Motor Vehicle Pollution Control Program**

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## **November 2017**

- CARB Staff Holds Another Low Carbon Fuel Standard Workshop and Releases Draft Text of Proposed Amendments (page 1)
- CARB Initiates Development of a Spending Plan for the Volkswagen Environmental Mitigation Trust (page 4)
- Second CARB Workshop on EMFAC2017 Updates (page 6)
- CARB Approves Research Proposals (page 11)
- California Energy Commission Releases Proposed 2018–2019 Alternative and Renewable Fuel and Vehicle Technology Program Investment Plan (page 12)
- Rulemaking Calendar (page 14)

## October 2017

- CARB Staff Holds Workshop on Amendments to Low Carbon Fuel Standard Regulation (page 2)
- CARB Holds Final Workshop on 2030 Target Scoping Plan (page 3)
- CARB Holds First Workshop to Kick Off Next Round of Cap and Trade Amendments (page 5)
- CARB Staff Holds Workshop on Proposed Clean Transportation Incentive Funding (page 7)
- CARB Staff Presents Revised Enforcement Policy to Board (page 7)
- CARB Approves Provisions for Aftermarket Catalytic Converters for LEV III Vehicles (page 9)
- CARB Holds Workshop to Develop SIP-Creditable Incentive Measure for Replacement/Repower of Pre-2010 On-Road Heavy-Duty Trucks Operating in the South Coast (page 9)
- CARB Staff Reports on the San Joaquin Valley 2017 PM<sub>2.5</sub> SIP (page 11)
- Legislative Update (page 12)
- Rulemaking Calendar (page 16)



## **SEPTEMBER 2017**

- CARB Staff Holds Final Workshop on Proposed Revisions to Penalty Policy (page 1)
- CARB Holds Initial Workshop to Develop Concepts for Indirect Source Regulations on Goods Movement Facilities (page 3)
- CARB Staff Holds Another Workshop on Proposed California Phase 2 GHG Standards for Heavy-Duty Trucks (page 5)
- CARB Staff Holds Workshop to Discuss Amendments to the Ships At-Berth Regulation (page 7)
- CARB Considers Certification of “Specialty” Vehicles (page 8)
- CARB Staff Holds Workshop on Changes to Refinery Investment Credit Pilot Program (page 10)
- Legislative Update (page 11)
- Rulemaking Calendar (page 22)

## August 2017

- CARB Staff Holds Workshop on Low Carbon Fuel Standard (page 2)
- CARB Finalizes Cap-and-Trade Program Revisions Initially Presented Last September (page 4)
- CARB Approves Initial Electrify America Program to Promote ZEV Infrastructure and Public Awareness Using Funds from the VW Settlement (page 6)
- CARB Proposes to Amend Aftermarket Catalytic Converter Approval Procedures to Include LEV III Vehicles (page 8)
- CARB Announces New Electronic Certification Database for Heavy-Duty Engines/Vehicles and Non-Road Compression-Ignition Engines Beginning in 2019 Model Year (page 9)
- CARB Holds Second Workshop on Additional Regulations for Transportation Refrigeration Units (page 10)
- CARB Releases Draft Surveys Intended to Gather Data on Seaport and Railyard Operations for Use in Developing Future Regulations as part of the Sustainable Freight Action Plan (page 13)
- Legislative Update (page 14)
- Rulemaking Calendar (page 23)

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## **JULY 2017**

- CARB Staff Updates Board on Status of the Low Carbon Fuel Standard and the Schedule for Developing More Stringent Post 2020 Requirements (page 2)
- CARB Discusses Ways to Ensure Payback of Projects that Convert Dairy Waste to Renewable Natural Gas for Use in Transportation Applications (page 6)
- CARB Hears Presentation Regarding Technical Progress Towards Low-NOx Heavy-Duty Engines (page 7)
- CARB Staff Proposes Longer Warranty Periods for Heavy-Duty Vehicle Emission Control Systems (page 8)
- CARB Staff Continues Revision of Enforcement Program (page 12)
- CARB Hears Update on Enhanced Fleet Modernization Program (page 14)
- CARB Staff Releases Mail-Out Explaining New Submittal Procedures for OBD II Certification Documents (page 17)
- CARB Staff Releases Staff Report and Holds Workshops to Discuss Draft SB 375 Targets (page 17)
- CARB Approves Staff's Proposed Amendments to the Mandatory Reporting Rule for Greenhouse Gases (page 19)
- CARB Staff Holds Workshops to Discuss California's Racing Vehicle Definition – Staff Presentation Suggests "Competition-Only" Parts May be Outlawed for Vehicles Registered for Street Use; Defining "Highways" to Include Off-Road Riding Areas Also Being Considered (page 20)
- Legislative Update (page 23)
- Rulemaking Calendar (page 33)

## **JUNE 2017**

- CARB Staff Updates Board on International Engagements - Presentation Mainly Touts Governor Brown's "Leadership" on Climate Change (page 2)
- CARB Holds Workshop to Discuss Updates to the EMFAC Model (page 4)
- CARB Staff Briefs the Board on Efforts to Study Barriers to Low-Income Residents' Use of Zero- and Near-Zero-Emission Vehicles (page 13)
- CARB Hears an Update on Development of the San Joaquin Valley 2017 PM2.5 State Implementation Plan (page 14)
- CARB Approves 2016 Ozone SIP for the Western Mojave Nonattainment Area Demonstrating Attainment of the 2008 75 ppb 8-Hour Ozone Standard by 2027 (page 15)
- CARB Staff Holds Workshop on Implementation of Phase II Enhanced Vapor Recovery Controls for Aboveground Gasoline Storage Tanks (page 16)
- CARB Staff Briefs Board on Plans to Eliminate "Red Sticker" Program for Off-Highway Recreational Vehicles and to Propose More Stringent Standards for Both Off-Highway Recreational Vehicles and On-Road Motorcycles (page 18)
- Legislative Update (page 20)
- Rulemaking Calendar (page 30)

## **MAY 2017**

- CARB Staff Finally Rolls Out Proposed ZEV Mandate for Heavy-Duty Trucks (page 2)
- CARB Staff Updates Board on Plans to Perform Remote Sensing of Heavy-Duty Vehicles (page 4)
- CARB Staff Holds Workshops on LCFS Provisions for Renewable Natural Gas from Manure and Biomass-Based Diesel (page 6)
- CARB Approves Annual Research Plan Focused on Projects Related to Environmental Justice, Mobile Sources, and Short-Lived Climate Pollutants (page 8)
- CARB Releases Report on Barriers to Access to Zero-Emissions Transportation for Low-Income Residents (page 10)
- CARB Holds Third Workshop on In-Use Heavy-Duty Vehicle Inspections (page 11)
- CARB Approves Revisions to Moyer Program Guidelines (page 13)
- Legislative Update (page 15)
- Rulemaking Calendar (page 26)

## April 2017

- CARB Votes to Retain Current Light-Duty Vehicle Standards and ZEV Mandate – Board Also Directs Staff to Return by 2020 with More Stringent Standards for 2026 and Later Model Years (page 2)
- CARB Approves the 2016 State Implementation Plan Strategy and 2016 South Coast Air Quality Management Plan (page 7)
- CARB Staff Presents Overview to Board of the Volkswagen ZEV Investment Plan (page 9)
- CARB Staff Continues Development of 2030 Scoping Plan (page 11)
- CARB Staff Holds LCFS Workshop Focused on Lifecycle Analysis (page 14)
- CARB Unanimously Approves the Short-Lived Climate Pollutant Emission Reduction Strategy (page 16)
- CARB Updates Board on SB 375 Target Revision Process (page 17)
- CARB Petitions EPA to Adopt More Stringent Locomotive Emission Standards (page 19)
- Appellate Court Rules in Favor of CARB on Cap-and-Trade Lawsuit – Plaintiffs Plan to Appeal to California Supreme Court (page 20)
- CARB Holds Workshop Regarding Emissions from “Red Sticker” Off-Highway Recreational Vehicles and On-Road Motorcycles – As Expected, CARB Staff Proposes Additional Controls (page 22)
- Legislative Update (page 25)
- Rulemaking Calendar (page 37)

## March 2017

- Two State Legislators Appointed to California Air Resources Board as Ex-Officio Members (page 2)
- CARB Staff Holds “Invitation Only” Meeting on Auxiliary Emission Control Device (AECD) Reporting Requirements (page 2)
- CARB Staff Holds Workshop on Agency’s Penalty Policy and Other Enforcement Issues (page 4)
- CARB Staff Holds Workshop on LCFS Credits for Low Carbon Jet Fuels (page 5)
- Heavy-Duty Vehicle Inspection Programs Discussed at CARB Workshop (page 8)
- CARB Staff Proposes to Mandate Use of Zero-Emission Shuttles at California Airports (page 10)
- CARB Workshop Addresses 15-day Changes to the Small Off-Road Engines Regulation Amendments (page 12)
- CARB Holds Workshops on Update of SB 375 GHG Reduction Targets – Push Back from Transportation Agencies Leads to Discussion of Statewide Road/VMT Pricing (page 13)
- Legislative Update (page 14)
- Rulemaking Calendar (page 25)

## February 2017

- CARB Staff Updates the Board on the Agency's Priorities for 2017 (page 2)
- Development of 2030 Target Scoping Plan Continues (page 3)
- CARB Staff Initiates Discussion on Changes Proposed for Federal Phase 2 GHG Standards for Heavy-Duty Trucks for Adoption within California (page 4)
- CARB Staff Updates Board on New Efforts Related to Emission Inventories (page 6)
- CARB and California Energy Commission (CEC) Hold Latest Activities Related to State's Investments in Low Carbon Transportation Fuels and Vehicles – Both Agencies Working on Fiscal Year 2017–2018 Project Funding Recommendations; CEC Releases Latest Report on Hydrogen Fuel Cell Vehicle Refueling Infrastructure (page 8)
- CARB Funds Research on “Clean” Heavy-Duty Sector in California (page 11)
- Legislative Update (page 11)
- Rulemaking Calendar (page 20)



## January 2017

- U.S. EPA and CARB Wrap Up Midterm Review of Light-Duty GHG Emission Standards – EPA Concludes (at least for now) that Current Standards Will Remain in Place; CARB Staff Sets the Stage for More Stringent Post 2025 Model-Year GHG Standards and ZEV Sales Requirements (page 1)
- CARB Holds Workshop on Revised Proposal for the Short-Lived Climate Pollutant Strategy (page 3)
- CARB Creates New Position of Assistant Executive Officer for Environmental Justice (page 5)
- Legislative Update (page 6)
- Rulemaking Calendar (page 9)

## December 2016

- Allocation of Volkswagen Settlement Funds Discussed at CARB Workshop (page 2)
- CARB Staff Holds Another Workshop on Development of 2030 Target Scoping Plan Update (page 6)
- Update on Cap-and-Trade Program Presented to the Board (page 9)
- CARB Staff Updates the Board on Development of Revised Supplemental Environmental Projects Policy (page 9)
- CARB Holds Workshop on the San Joaquin Valley 2016 PM2.5 Plan (page 11)
- CARB Adopts Proposed Changes to Evaporative Emission Requirements for Small Off-Road Engines (page 12)
- Final Locomotive Technology Assessment Released as Part of CARB's Sustainable Freight Action Plan Development (page 14)
- CARB Staff Holds Workshop on Updates to Moyer Program Guidelines – Focuses on Program's Cost-Effectiveness Limit (page 16)
- CARB Staff Updates the Board on California's Clean School Bus Program (page 17)
- California Air Quality Update (page 18)
- CARB Staff Briefs Board on 2016 Legislative Activity (page 48)
- Rulemaking Calendar (page 52)

## November 2016

- CARB Kicks Off Development of More Stringent NOx Standards and Other Requirements for New Heavy-Duty Engines (page 2)
- CARB Staff Holds Workshop and Updates Board on Developments of 2030 Scoping Plan (page 5)
- CARB Holds Low Carbon Fuel Standard Workshop – Staff Delays New LCFS Rulemaking by One Year (page 9)
- CARB Staff Begins Process to Develop an Advanced Clean Truck Program (page 10)
- CARB Staff Updates Board on Federal Phase 2 GHG Standards for Heavy-Duty Trucks and Discusses California’s Plans for Adoption of State Phase 2 Standards and Other New Regulations Targeting GHG Emissions from Heavy-Duty Trucks (page 12)
- CARB Delays Action on the San Joaquin Valley 2016 PM2.5 Moderate Plan for the 2012 Annual Standard (page 14)
- CARB Staff Holds Cap-and-Trade Workshop on Energy Imbalance Market (page 15)
- CARB Staff Holds Workshop to Discuss California’s Clean School Bus Program Update (page 16)
- CARB Adopts Regulation Relaxing Certification Requirements for “Innovative” Heavy-Duty Vehicle Technologies (page 19)
- CARB Approves the Revised FY 2016-2017 Incentive Funding for Low Carbon Transportation and Fuels Investments in Order to Address Funding Shortfall – Funding for ZEV Incentives Slashed (page 20)
- California Energy Commission Staff Releases Proposed 2017-2018 Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP) Investment Plan (page 22)
- CARB Approves Research Projects Focused on Mobile Sources, Environmental Justice, and Greenhouse Gas Emissions Monitoring (page 23)
- CARB Staff Holds Workshops to Discuss New Focus of Supplemental Environmental Projects as Part of Agency Enforcement Actions (page 24)
- CARB Holds Workshop on Proposed Changes to Agency’s In-Use Portable Engine Regulation (page 25)
- Rulemaking Calendar (page 27)

## **October 2016**

- CARB Staff Holds Advanced Clean Cars Symposium to Highlight ZEV, LEV, and GHG Technologies as Part of Midterm Review (page 1)
- CARB Releases 2015 ZEV Credit Balances (page 10)
- Governor's Office Releases "2016 ZEV Action Plan" (page 10)
- CARB Staff Holds Workshop and Informational Board Hearing on the Proposed 2016 State Implementation Plan Strategy (page 12)
- Board Considers Proposed Revisions to the Cap and Trade and Mandatory Greenhouse Gas Reporting Regulations (page 17)
- CARB Issues Guidance on Vapor Recovery Systems at Gasoline Dispensing Facilities (page 20)
- Legislative Update (page 20)
- Rulemaking Calendar (page 24)

## September 2016

- Transportation and Energy Sectors Discussed at Workshops on the 2030 Target Scoping Plan Update (page 1)
- CARB Releases Proposed Regulation Relaxing Certification Requirements for “Innovative” Vehicle Technologies (page 8)
- CARB Holds Workshop on Changes to Aftermarket Catalyst Procedures to Allow Installation on LEV III Vehicles (page 11)
- CARB Begins Rulemaking Activity on Proposed Changes to Heavy-Duty Vehicle Inspection Programs (page 12)
- CARB Holds Workshop on Proposed Changes to Agency’s In-Use Portable Engine Regulation (page 13)
- Legislative Update (page 16)
- Rulemaking Calendar (page 21)

## August 2016

- CARB Staff Briefs Board on Joint CARB/EPA/NHTSA Draft Technical Assessment Report for the Midterm Review of the Agencies' 2017 to 2025 Model-Year GHG standards for Light-Duty Vehicles – Report Concludes that Compliance with 2025 Standards Is Feasible with Minimal Need for Zero-Emission Vehicles (page 2)
- CARB Staff Holds Workshop to Discuss Amendments to the Low Carbon Fuel Standard (page 7)
- CARB Staff Briefs the Board on Study of Overcoming Barriers to Zero- and Near-Zero-Emission Transportation for Low-Income Residents (page 9)
- CARB Releases Final Version of Sustainable Freight Action Plan (page 10)
- CARB Adopts the San Joaquin Valley 2016 Ozone Plan (page 12)
- Board Approves the Proposed Amendments to the In-Use Large Spark Ignition (LSI) Engine Regulation (page 13)
- CARB Announces It Will Perform Testing on Highway Motorcycle and Off-Highway Recreational Vehicles to Identify “Defeat Devices” (page 14)
- CARB Staff Releases Draft Amendments to the Cap-and-Trade and Mandatory Reporting Rule Regulations (page 14)
- CARB Staff Holds Workshop on Updates to Moyer Program Guidelines (page 16)
- Legislative Update (page 17)
- Rulemaking Calendar (page 24)

## **July 2016**

- CARB Staff Releases Concept Paper for 2030 Target Scoping Plan Update and Provides Status Update to the Board (page 2)
- CARB Approves Over \$500 Million in FY 2016-2017 Incentive Funding for Low Carbon Transportation and Fuels Investments (page 5)
- CARB to Relax Requirements for “Innovative” Medium- and Heavy-Duty Vehicle Technologies (page 7)
- CARB Releases Annual Enforcement Report for 2015 – Claims Over \$34 Million in Penalties (page 10)
- CARB Staff Briefs the Board on the Progress Made in Improving Air Quality in Environmental Justice Communities (page 11)
- CARB Staff Holds Final Cap-and-Trade Workshop and Releases Draft Amendments (page 12)
- CARB Holds Workshop on Relaxation of Portable Engine Requirements (page 13)
- Legislative Update (page 15)
- Rulemaking Calendar (page 22)

## **June 2016**

- CARB Releases Proposed State Implementation Plan (SIP) Strategy and Updated Mobile Source Strategy (page 2)
- CARB Holds Compliance Tutorial on the Zero Emission Vehicle (ZEV) Regulation for Model Years 2018+ (page 4)
- CARB Staff Holds Workshop on Low Carbon Fuel Standard (page 5)
- CARB Releases Proposed Amendments to the Regulations Affecting In-Use Large Spark Ignition (LSI) Engine Equipment Fleets – Focus Is on New Registration and Labeling (page 7)
- CARB Holds Workshop to Discuss Proposed Changes to Small Off-Road Engine (SORE) Regulations (page 8)
- CARB Staff Presents Proposed Short-Lived Climate Pollutant (SLCP) Emission Reduction Strategy to the Board (page 10)
- CARB Loses Lawsuit Over In-Use Truck and Bus Rule (page 12)
- CARB's 2016-2017 Research Plan – Projects Focus on Mobile Sources, Environmental Justice, and Greenhouse Gas Emissions Monitoring (page 13)
- Legislative Update (page 15)
- Rulemaking Calendar (page 28)



## May 2016

- CARB Releases Draft Sustainable Freight Action and Presents Overview to Board (page 2)
- CARB Publishes Report Characterizing the Truck and Bus Sector in Support of the Agency's Sustainable Freight Action Plan (page 6)
- CARB Releases Locomotive Technology Assessment in Support of the Agency's Sustainable Freight Action Plan (page 9)
- CARB Adopts Modifications to Aftermarket Diesel Particulate Filter (DPF) Regulation (page 11)
- CARB Amends Regulations for Small Containers of Automotive Refrigerants (page 13)
- CARB Holds Workshop on the Proposed Short Lived Climate Pollutant Strategy (page 14)
- CARB Staff Holds Additional Cap-and-Trade Workshops on Emissions Leakage and Program Linkage (page 15)
- Legislative Update (page 17)
- Rulemaking Calendar (page 29)

## April 2016

- CARB Staff Holds Cap-and-Trade Workshops on Post-2020 Program Amendments (page 2)
- Fuel Cell Partnership Forum and Joint Report by CARB and the California Energy Commission Paint Rosy Picture for Development of Hydrogen Refueling Stations (page 4)
- CARB and California Energy Commission Kick Off Study to Make Advanced-Technology Vehicles More Accessible to Low-Income Consumers (page 5)
- CARB Holds Final Workshop on Transportation Incentive Funding Plan for 2016-17 (page 6)
- CARB Begins Development of More Stringent Transport Refrigeration Unit Regulations (page 8)
- CARB Reneges on Promise to Sunset Ocean-Going Vessel Fuel Regulation Following Adoption of Federal Regulations (page 10)
- Legislative Update (page 11)
- Rulemaking Calendar (page 25)

## March 2016

- South Coast Air Quality Management District Board Votes to Replace Executive Officer (page 2)
- CARB Staff Proposes Changes to Mandatory Reporting and Cap-and-Trade Regulations (page 3)
- CARB Publishes Annual Report on Spending Cap-and-Trade Proceeds (page 4)
- CARB Staff Holds a Workshop on Low Carbon Fuel Standard Pathway Application Processing and Data Requirements, Updates to Alternative Fuel Portal, and Clarifications to Reporting Requirements (page 6)
- CARB Staff Briefs Board About How Mobile Sources are Regulated (page 8)
- CARB Board Rejects Staff's Proposal to Relocate from El Monte to Pomona – Votes to Locate New Laboratory in Riverside (page 9)
- CARB Adopts Amendments to Portable Fuel Container Regulations (page 11)
- CARB Holds Workshop on Changes to Portable Engine Regulations (page 12)
- CARB Staff Holds Workshop on Updates to Moyer Program Guidelines (page 14)
- Legislative Update (page 16)
- Rulemaking Calendar (page 26)

## February 2016

- New Members Appointed to CARB to Represent Interests of “Disadvantaged Communities” (page 2)
- CARB Staff Presents 2016 Priorities to the Board – Agency Still Focused on “Transformation” of Transportation Sector (page 3)
- CARB Staff Provides the Board with a Preview of Upcoming State Implementation Plan Activities (page 5)
- CARB Staff Updates Board on Development of the Sustainable Freight Strategy (page 6)
- CARB Holds Sustainable Freight Action Plan Workshops (page 8)
- CARB Holds Meeting on Technology and Market Assessment of Light-Duty Zero and Near-Zero Emission Vehicles (page 10)
- CARB Staff Updates Board on Enforcement of Regulations Targeting In-Use Diesel Engines and Vehicles (page 13)
- CARB Staff Holds Symposium and Updates the Board on Plans for Advanced Clean Transit Regulation (page 16)
- CARB Hears Update on Strategies to Reduce Near-Roadway Air Pollution Exposure (page 22)
- CARB Approves Research Proposal to Develop Heavy-Duty Vehicle Inspection and Maintenance Program (page 24)
- CARB Holds Second Workshop on FY 2016-17 Air Quality Improvement Program Funding Plan (page 25)
- CARB Holds Carbon Capture and Sequestration (CCS) Workshop as Prelude to Incorporating the GHG Reduction Strategy into the Agency’s Regulations (page 29)
- Legislative Update (page 30)
- Rulemaking Calendar (page 38)

## **January 2016**

- CARB Staff Holds a Workshop on Economic Analysis of the 2030 Target Scoping Plan (page 1)
- CARB Approves Guidelines for Spending Cap-and-Trade Funds (page 4)
- Board Updated on Progress in Selecting Site for New CARB Emission Testing Laboratory – Sites Affiliated with Cal Poly Pomona and U.C. Riverside Are Under Consideration (page 9)
- CARB Staff Forced to Forego Enforcement of 2017 Standards for In-Use Fleets of Portable Diesel Equipment – Will Propose Regulatory Changes to Address Future-Year Standards (page 11)
- Legislative Update (page 12)
- Rulemaking Calendar (page 15)

## December 2015

- CARB Staff Presents a Status Report on Development of the 2030 Target Scoping Plan Update (page 2)
- CARB Staff Updates Board on Cap-and-Trade Program Implementation and Compliance Status During the First Compliance Period (page 4)
- CARB Staff Reports to Board on 2015 Air Quality and Climate Change Legislation (page 5)
- CARB Staff Holds Workshop on Development of a Long-Term Plan for the Clean Vehicle Rebate Project (page 8)
- CARB Staff Proposes Legislatively Mandated Changes to Moyer Program and Lower-Emission School Bus Program Guidelines (page 11)
- CARB Staff Updates Board on Sustainable Freight Strategy and Releases Technology Assessments on Fuel Cell Vehicles and Cargo Handling Equipment (page 13)
- CARB Releases Initial List of Pilot Projects Submitted in Response to Sustainable Freight Strategy Call (page 16)
- Rulemaking Calendar (page 17)

## November 2015

- CARB Staff Briefs Board on the Development of the Mobile Source Strategy (page 2)
- CARB Staff Updates Board on Advanced Clean Cars Program and Zero Emissions Vehicle Market as a Prelude to Next Year's "Mid-Term" Review – Staff Reports That All is Well (page 4)
- CARB Holds Workshop on Recertification of Low Carbon Fuel Standard Fuel Pathways – Stakeholders Have Until January 31 to Submit Applications for Existing and New Pathways (page 9)
- CARB Adds Technology Assessment on Hybrid Heavy-Duty Vehicles to Collection of Staff Documents Supporting the Development of the Sustainable Freight Strategy (page 10)
- CARB Holds Workshop on Changes to Portable Fuel Container Requirements – Agency Seeks to Address Compliance Issues (page 11)
- CARB Staff Holds Public Workshop on Potential Cap-and-Trade Program Amendments (page 13)
- CARB Accepts Sustainable Community Strategies Prepared by Shasta, Kings, and Tulare Regional Transportation Planning Agencies (page 13)
- CARB Adopts Revised Transportation Conformity Budgets for the San Joaquin Valley Ozone, PM10 and PM2.5 SIPs (page 16)
- CARB Modifies Air Quality Improvement Program Funding Plan In Response to Reduction in Funding (page 17)
- CARB Holds Workshops on Guidelines for Spending Cap-and-Trade Funds (page 20)
- CARB Changes Evaporative Emission Certification Requirements for 2017 and Later Small Off-Road Engines and Equipment (page 24)
- CARB Staff Holds Workshop on Changes to Gas Station Enhanced Vapor Recovery Regulations to Address False Alarms (page 25)
- Rulemaking Calendar (page 28)

## October 2015

- CARB Adopts Alternative Diesel Fuel (ADF) and Low Carbon Fuel Standard (LCFS) Regulations and Makes Filings Necessary for Regulations to Take Effect on January 1, 2016 (page 2)
- CARB Adopts Proposed OBD Changes – Includes Requirements Allowing Collection of Vehicle Operating Data (page 3)
- CARB Rolls out “Transformational” Mobile Source Strategy – Lays Out Course to Reduce Greenhouse Gas Emissions by 40% and NOx Emissions by 80% by 2031 (page 6)
- CARB Staff Holds Second Workshop on Innovative Technology Rulemaking – Proposal Would Relax OBD and Certification Requirements for Low-NOx Engines and Heavy-Duty Hybrids (page 8)
- CARB Holds AB 32 Scoping Plan Update Workshop in Support of Governor’s 2030 GHG Emissions Reduction Goal (page 13)
- CARB Conducts “Webinar” on Sustainable Freight Strategy (page 17)
- CARB Releases More Technology Assessments as Support for Development of the Sustainable Freight Action Plan (page 19)
- CARB Releases Proposed Changes to the Off-Road Large Spark Ignition (LSI) Fleet Regulation (page 22)
- CARB Adopts Year 5 Proposition 1B Funding Awards – Includes Increased Funding for Advanced Technology and Natural Gas Heavy-Duty Vehicles (page 23)
- CARB Holds Workshops on Draft Strategy for Controlling Short-Lived Climate Pollutants (SLCPs), including Black Carbon and Methane (page 25)
- CARB Adopts Revised Spending Guidelines for Agencies that Administer Cap-and-Trade Funds (page 27)
- CARB Issues Two Mail-Outs Providing Guidance on the Lower-Emission School Bus Program – AB 923 Funds Allowed for All-Electric Bus Purchase and Conversions (page 30)
- Legislative Update (page 31)
- Rulemaking Calendar (page 35)



## **September 2015**

- California Air Quality Update (page 1)
- CARB/SCAQMD Add Commercial Harbor Craft to Collection of Sustainable Freight Strategy Technology Assessments (page 30)
- CARB Looks to Amend Rules Related to Small Containers of Automotive Refrigerant (page 32)
- Legislative Update (page 33)
- Rulemaking Calendar (page 43)

## August 2015

- CARB Staff Releases Proposed OBD Changes – Staff Indicates Industry Concerns with MIL Illumination Criteria as Well as Collection of Vehicle Operating Data (page 2)
- CARB Staff Updates Board on Proposed Federal Phase 2 GHG and Fuel Economy Standards for Medium- and Heavy-Duty Trucks – Staff Focuses Board on “Opportunities” Missed by EPA to Impose More Stringent NOx Standards and Force Deployment of Hybrid, Electric, and Fuel Cell Vehicles (page 4)
- CARB Releases Transport Refrigeration Unit Technology Assessment Related to Development of the Sustainable Freight Strategy – Staff Points to Electric, Fuel Cell, and Cryogenic Technologies as Cost-Effective Options to Diesel and Natural Gas (page 6)
- CARB Approves Research Proposals (page 8)
- CARB Holds Third Workshop on Aftermarket Diesel Particulate Filters – Staff Trying to Address Industry Concerns (page 10)
- CARB Accepts Kern Council of Governments’ Sustainable Community Strategy (page 12)
- San Joaquin Valley 2015 PM2.5 State Implementation Plan is Approved by CARB (page 15)
- CARB Holds Workshops to Discuss Development of Appropriation Recommendations and Draft Funding Guidelines for Cap-and-Trade Funds (page 16)
- Smog Check Update (page 20)
- Legislative Update (page 54)
- Rulemaking Calendar (page 62)

## July 2015

- Low Carbon Fuel Standard Activities – CARB Delays Second Board Hearing on LCFS and Alternative Diesel Fuel Regulations to September; California Environmental Policy Council Approves Multimedia Evaluations of Bio and Renewable Diesel (page 1)
- CARB Continues Greenhouse Gas Reduction Efforts in Response to Governor’s Push – Releases Updated Sustainable Freight Strategy Document and Holds Workshop on Transportation Sector Strategies (page 3)
- CARB Adopts Air Quality Improvement Program Funding Plan that Includes \$350 Million in Cap-and-Trade Proceeds (page 7)
- CARB Revises Proposition 1B Funding Guidelines to Allow Increased Funding for Advanced Technology and Natural Gas Heavy-Duty Vehicles (page 12)
- CARB Accepts SB 375 Sustainable Community Strategies Prepared by Stanislaus and San Luis Obispo Regional Planning Agencies and Staff Updates Board on San Diego 2015 Draft SCS (page 17)
- CARB Holds Workshops on Development of Guidelines for Distribution of Cap-and-Trade Funds (page 20)
- Legislative Update (page 22)
- Rulemaking Calendar (page 31)

## June 2015

- CARB Workshop Focuses on Strategy for Reducing Emissions of “Short-Lived Climate Pollutants” – More Controls on Diesel Emissions and Refrigerants Likely (page 2)
- CARB Adopts ZEV Flexibility Provisions for Intermediate Volume Manufacturers (IVMs) (page 4)
- CARB Holds Workshop on Proposed Modifications to the ZEV Regulation’s Fast Refueling Credit Provisions (page 8)
- CARB Begins Release of Technology Assessments in Support of the Sustainable Freight Strategy (page 9)
- CARB Holds Workshop on Proposed Changes to the Off-Road Large Spark Ignition (LSI) Fleet Regulation That Would Change Reporting and Recordkeeping Requirements (page 12)
- CARB Holds Meeting to Discuss Selecting a Contractor to Collect Data from Heavy-Duty Vehicle Projects Receiving Funds under the Air Quality Improvement Program (page 13)
- CARB Releases Mailout Describing Changes to Proposed Procedures for Approval of Non OEM Replacement Diesel Particulate Filters — Substantially Relaxes Requirements (page 14)
- CARB Approves Six New Research Projects (page 15)
- CARB Begins Vehicle Scrappage and Replacement Pilot Program in “Disadvantaged” Los Angeles and San Joaquin Valley Communities (page 16)
- CARB Board Accepts San Joaquin Valley Council of Governments’ Sustainable Community Strategy (page 18)
- Legislative Update (page 20)
- Rulemaking Calendar (page 33)

## May 2015

- CARB Staff Updates Board on Development of Sustainable Freight Strategy – CARB and Other State Agencies Plan to “Transform” California’s Goods Movement Sector (page 2)
- CARB Holds Symposium on Phase 2 Greenhouse Gas Emission Standards for On-Road Heavy-Duty Vehicles – Agency Continues to Claim It May Act Independently of EPA to Adopt More Stringent GHG and NOx Emission Standards (page 5)
- CARB Workshop on Advanced Clean Transit – Staff Proposal Based on Dreams of a Completely Zero-Emission Bus Fleet by 2040 (page 13)
- CARB Staff Briefs Board on Vehicle Emissions Research (page 16)
- CARB Staff Proposes Changes to Moyer Program Guidelines for On-Road Heavy Duty Truck Incentives – Funding Eligibility Reinstated for Fleets with Ten or Fewer Trucks (page 18)
- CARB Holds Workshop to Discuss Revisions to Proposition 1B Funding Guidelines – Proposal Pushes Electric, Hybrid, and Low-NOx Heavy-Duty Vehicles (page 19)
- CARB Staff Holds Workshop On Portable Fuel Container Regulations – Cites 50% Noncompliance Rate with Current Requirements (page 24)
- CARB Approves Changes to Enhanced Vapor Recovery (EVR) Regulations for Aboveground Gasoline Storage Tanks (page 25)
- Legislative Update (page 29)
- Rulemaking Calendar (page 42)

## April 2015

- Governor Establishes Interim Target for Reducing Greenhouse Gas Emissions – Executive Order Would Require 40% Reduction From 1990 Levels by 2030 (page 2)
- CARB Staff Holds Workshop On Proposed Carbon Intensity Values for the Low Carbon Fuel Standard Regulation – Revised “Illustrative” Compliance Scenario Shows Smaller Compliance Margins (page 2)
- CARB Staff Publishes Draft Assessment of Technologies to Reduce NO<sub>x</sub> and GHG Emissions from Heavy-Duty Vehicles in Support of Sustainable Freight Strategy Development (page 5)
- CARB Holds Workshop on Vision 2.0 Model to be Used for “Scenario Planning” in Efforts to Comply with Air Quality and Climate Change Goals (page 8)
- CARB Holds Second Workshop on Proposal for Approving Aftermarket Diesel Particulate Filters As Substitutes for OEM Replacement Parts (page 12)
- CARB Orders Recall of Retrofit Diesel Particulate Filter (page 13)
- CARB Staff Holds Final Workshop on 2015-16 Air Quality Improvement – Proposes Changes in Eligibility Criteria for Hybrid and ZEV Purchase Incentives (page 14)
- Legislative Update (page 20)
- Rulemaking Calendar (page 34)

## March 2015

- CARB Staff Presents Proposed Low Carbon Fuel Standards and Alternative Diesel Fuel Regulations to the Board (page 1)
- CARB Staff Holds Workshop on “Innovative Technology” Regulation That Would Relax Requirements for Certification of Heavy-Duty Hybrid Vehicles (page 4)
- CARB Adopts Tighter Evaporative Emission Standards for Spark-Ignition Watercraft with Engines over 40 Horsepower (page 8)
- CARB Proposes to Update Vapor Recovery Equipment Defects List (page 10)
- Legislative Update (page 11)
- Rulemaking Calendar (page 21)

## February 2015

- CARB Staff Presents 2015 Regulatory Priorities to Board – Many Significant Regulations Targeting Mobile Sources and Fuels Will Be Considered (page 1)
- CARB Staff Reports to Board on Regional Air Quality in California (page 4)
- CARB Holds Second Workshop on 2015-2016 Air Quality Improvement Program and Low Carbon Transportation Funding Plan – Legislatively Mandated Guideline Changes Will Set New Limits for Light-Duty ZEV Purchase Incentives (page 5)
- SB 375 Implementation Continues – CARB Accepts Sustainable Community Strategy for Fresno Council of Governments (page 10)
- CARB Staff Updates Board on Sustainable Communities Research Efforts (page 12)
- Legislative Update (page 14)
- Rulemaking Calendar (page 17)



## January 2015

- Governor Announces Proposal to Reduce the Use of Petroleum as a Transportation Fuel in California by 50% Between Now and 2030 (page 2)
- CARB Staff Releases Proposed Alternative Diesel Fuel and Low Carbon Fuel Standard Regulations (page 2)
- CARB Staff Updates Board on Sustainable Freight Strategy and Provides Status Update Regarding Technology and Fuels Assessment – Board Wants Staff to Move Faster (page 9)
- CARB Staff Updates Board on Work with Other Countries to Export California Air Quality Regulations (page 12)
- CARB Officially Releases EMFAC2014 Emissions Inventory Model (page 14)
- Staff Presents CARB’s 2015-2016 Research Plan – Projects Focus on Heavy-Duty Diesel Engines and ZEV Technology (page 14)
- CARB Staff Releases Proposal to Tighten Evaporative Emission Standards for Spark-Ignition Watercraft with Engines over 40 Horsepower (page 17)
- CARB Staff Presents Moyer Program Evaluation to Board –Recommends Increased Cost-Effectiveness Limits and Inclusion of GHG and Infrastructure Projects (page 22)
- 2015 Legislative Session Begins (page 26)
- Rulemaking Calendar (page 28)

## December 2014

- CARB Staff Holds Workshop on Proposed OBD II Revisions to Address More Stringent Standards of the Advanced Clean Cars Regulation (page 2)
- CARB Holds Another LCFS Workshop – Staff Continues to Revise Proposed Carbon Intensity Values for Indirect Land Use Change (page 3)
- CARB Staff Holds Workshop on Procedures for Aftermarket Diesel Particulate Filters (page 5)
- CARB Approves Research Program Related to Expansion of GHG Reduction Measures for In-Use Heavy-Duty Vehicles (page 7)
- CARB Issues Another Mail-Out to Deal with Recall of Cleaire Retrofit Diesel Control Devices (page 8)
- CARB Staff Reports to Board on 2014 Air Quality and Climate Change Legislation (page 8)
- CARB Accepts Association of Monterey Bay Area Governments’ Sustainable Community Strategy (page 12)
- CARB Adopts Revised Transportation Conformity Budgets for the San Joaquin Valley 2012 PM2.5 Plan (page 13)
- Rulemaking Calendar (page 14)

## November 2014

- CARB Staff Holds Two More LCFS Workshops – Presents LCFS Compliance Scenarios and Cost Containment Provisions As Well As Updates Regarding Crude Oil, Refinery Investment, and Reporting/Recordkeeping Provisions (page 2)
- CARB Staff Holds Workshops on Alternative Diesel Fuel (ADF) Regulation – Still Plans to Take Proposal to the Board in February Despite Outstanding Issues (page 6)
- CARB Hears Second Update on Advanced Clean Cars Program Status – Staff Continues to Claim that Manufacturers Are on Track to Compliance (page 8)
- CARB Staff Proposes ZEV Flexibility Provisions for Intermediate Volume Manufacturers (IVMs) – Board Rejects Staff Proposal as Too Lenient and Orders Staff to Make Revisions (page 13)
- CARB Staff Updates Board on ZEV Infrastructure – Says California Is on Track to Meet 2025 Goals (page 19)
- CARB Adopts Changes to the LEV III Regulations Intended to Improve Alignment with EPA’s Tier 3 Regulations, and to Streamline Hybrid Test Procedures (page 21)
- CARB Staff Updates Board on Heavy-Duty Truck Regulations in Advance of Consideration of Proposed Phase 2 Truck Fuel Economy and Sustainable Freight Program (page 25)
- CARB Staff Holds Workshop to Discuss Implementation and Potential Amendments to Vessel Shore Power Regulation (page 29)
- CARB Staff Holds Mobile Source Emission Inventory Workshop and Releases EMFAC2014 (page 32)
- Staff Briefs Board on SB 375 Target Update Process (page 36)
- CARB Holds Workshop on Year’s Air Quality Improvement Program and Low Carbon Transportation Funding Plan (page 39)
- CARB Approves Use of Emission Reductions from Mobile Source Incentive Programs in San Joaquin Valley State Implementation Plans (page 43)
- CARB Conducts Another Reorganization – Splits Up Former Stationary Source Division (SSD) (page 44)
- California Air Quality Update (page 45)
- Rulemaking Calendar (page 73)

## **October 2014**

- CARB Holds Workshop to Discuss Refinery Investment Provisions and Indirect Land Use Change (iLUC) as Part of the Low Carbon Fuel Standard Re-Adoption Process (page 2)
- CARB Holds Workshop on the Availability of Low Carbon Intensity Fuels (page 6)
- CARB Hosts Second Meeting of the Low Carbon Fuel Standard Advisory Panel (page 8)
- CARB Approves Amendments to Cap-and-Trade Regulation, Mandatory Reporting Rule, and AB 32 Cost of Implementation Fee Regulation (page 9)
- CARB Approves Interim Guidance on Allocation of Revenues from the Sale of Cap-and-Trade Allowances (page 11)
- CARB Approves Research Proposals Related to Fine Particulate Matter Levels in the San Joaquin Valley and Used Electric Vehicles (page 14)
- Legislative Update (page 15)
- Rulemaking Calendar (page 18)

## **September 2014**

- CARB Pushes Development of the Sustainable Freight Strategy Forward with Workshops Focused on “Technology Assessment” (page 2)
- CARB Holds Workshop on Updates to the CA-GREET Model as Part of the LCFS Re-Adoption Process (page 12)
- CARB Staff Publishes Proposed Changes to the LEV III Regulations Intended to Improve Alignment with Federal Tier 3 Regulations (page 16)
- CARB Staff Publishes Proposed Changes to the ZEV Regulations Intended to Provide Relief to Intermediate Volume Manufacturers (page 16)
- CARB Staff Holds SB 375 Target Setting Workshops and Releases a Staff Report on the Target Update Process (page 17)
- Legislative Update (page 19)
- Rulemaking Calendar (page 25)

## **August 2014**

- CARB Staff Updates Board on Proposed Re-Adoption of Low Carbon Fuel Standard (LCFS) Regulation (page 2)
- CARB Staff Updates Board on the Status of the Cap-and-Trade Offsets (page 3)
- CARB Staff Provides Another Update on San Joaquin Valley Sustainable Community Strategy (SCS) Development (page 6)
- Staff Presents Statutorily Required Moyer Program Evaluation to Board as Board Adopts Changes to Program Requirements that Will Help Some Owners Pay for Compliance with the In-Use Truck and Bus Rule (page 8)
- CARB Approves New Research Proposals (page 11)
- CARB Holds Workshops on Enhanced Vapor Recovery (EVR) Regulations (page 12)
- CARB Releases Advisory Allowing Early Use of Recent Changes to the In-Use Truck and Bus Regulation (page 16)
- Legislative Update (page 16)
- Rulemaking Calendar (page 23)

## July 2014

- CARB Holds Workshop to Discuss Proposed Revisions to the ZEV Regulation Requirements for Intermediate-Volume Manufacturers (page 2)
- CARB Releases New Data Indicating Increased NO<sub>x</sub> Emissions with B5 Blends – Findings May Impact Alternative Diesel Fuel Rulemaking (page 6)
- Latest CARB Low Carbon Fuel Standard (LCFS) Regulation Workshop Addresses Refinery and Crude Provisions (page 7)
- CARB Adopts Fiscal Year 2014-2015 Air Quality Improvement Program and Low Carbon Transportation Funding Plan – Includes an Additional \$200 Million in Funding from Cap-and-Trade Auction Proceeds (page 9)
- CARB Begins 2016 Ozone State Implementation Plan Submittal Process by Approving Emission Inventories (page 15)
- CARB Staff Proposes Amendments to the Enhanced Fleet Modernization Program Guidelines (page 18)
- CARB Staff Briefs Board on Mobile Source Emission Measurement Methods and Plans for New Vehicle Testing Laboratory (page 22)

## June 2014

- CARB Continues Efforts Focused on Re-adoption of the Low Carbon Fuel Standard Regulation – Staff Calls for Alternative Regulatory Proposals and Input on Environmental Analysis (page 2)
- CARB Holds LEV III Workshop – Staff Proposes Changes to Align with Federal Tier 3 Requirements and Modifications to Hybrid Vehicle Test Procedures (page 9)
- CARB Holds Workshops to Discuss Tighter Evaporative Emission Standards for Watercraft (page 14)
- CARB Approves First Scoping Plan Update – Sets Stage for Future GHG Reduction Measures (page 20)
- CARB Staff Updates Board on SB 375 Sustainable Community Strategy Development in the San Joaquin Valley (page 25)
- CARB Approves Six Research Proposals Including Three Focused on Mobile Sources (page 29)
- Legislative Update – State Budget and Trailer Bills Allocates Cap-and-Trade Revenue (page 30)
- Rulemaking Calendar (page 39)



## May 2014

- CARB Adopts Changes to In-Use Truck and Bus Regulation – Contentious Hearing Pits Compliant Truckers Against Truckers Seeking Regulatory Relief (page 2)
- CARB Approves Amendments to Cap-and-Trade Regulation with 15-Day Modifications (page 3)
- CARB Staff Holds Workshops to Kick-Off the Agency’s Sustainable Freight Transport Initiative – Hopes to Have Sustainable Freight Strategy Drafted by This Fall (page 5)
- After Running Out of Money, CARB Votes to Pay for Current-Year ZEV Incentives with Funds from Next Year (page 11)
- CARB Holds Public Meeting and Workshop on Proposed Revisions to Carl Moyer Program Requirements (page 12)
- CARB Holds Workshops to Discuss Changes to Enhanced Vapor Recovery Regulations for Aboveground Gasoline Storage Tanks (page 15)
- Smog Check Update – OBD II Only Testing Still Awaiting Approval of New Scan Tool (page 19)
- Legislative Update (page 51)
- Rulemaking Calendar (page 62)

## April 2014

- CARB Holds Series of Workshops Related to the Low Carbon Fuel Standard (LCFS) Regulation as Agency Pushes towards “Re adoption” (page 1)
- After Abandoning Previous Rulemaking, CARB Holds Workshop to Begin New Alternative Diesel Fuel Rulemaking (page 8)
- CARB Staff Holds Workshop Announcing that \$200 Million in Cap-and-Trade Revenues are Being Added to Fiscal Year 2014-2015 Air Quality Improvement Program (AQIP) Funding Plan (page 11)
- Legislative Update (page 16)
- Rulemaking Calendar (page 28)

## March 2014

- CARB Holds Workshop to Discuss Proposed Changes and New Concepts for the LCFS Program (page 2)
- CARB Staff Holds Workshop on Revisions to Biofuel Indirect Land Use Change (iLUC) Impacts Incorporated into the Low Carbon Fuel Standard Regulation (page 5)
- CARB Staff Re-issues Draft Update of Five-Year Scoping Plan and Boards Hears Comments – Plan Still Lacks Details Regarding Cost and Cost-Effectiveness (page 8)
- CARB Proposes Amendments to the Truck and Bus Rule That Will Provide Additional Relief (page 15)
- CARB Holds Workshop on Proposed Changes to California’s Vehicle Scrappage Program (page 19)
- CARB Staff Holds Workshop Regarding Plans to Assess the Emission Impacts of Exempting Certain Off-Highway Recreational Vehicles (OHRVs) from Compliance with Emission Standards (page 21)
- CARB Staff Holds Workshop on Proposed Changes to Gas Station Enhanced Vapor Recovery Regulations (page 24)
- CARB Staff Briefs Board on Relative Need for VOC and NOx Reductions in the South Coast and San Joaquin Valley Air Basins In Order to Achieve Compliance with Federal Ozone and PM2.5 Standards (page 26)
- CARB Issues Advisory on Reporting Natural Gas Volumes Under the Low Carbon Fuel Standard (page 28)
- CARB Issues Advisory and Executive Order Regarding Vapor Recovery Regulations for Aboveground Gasoline Storage Tanks (page 28)
- Legislative Update (page 29)
- Rulemaking Calendar (page 38)

## February 2014

- CARB Reorganizes Its Mobile Source Emissions Control Program (page 2)
- CARB Staff Presents 2014 Regulatory Agenda to the Board – Agency Commits to “Continued Reduction in Air Pollution in All Communities” (page 3)
- Following Postponement of Board Hearing, CARB Holds Workshop to Discuss Modifications to the Proposed Alternative Diesel Fuel Regulations (page 6)
- Staff Briefs Board on Plans for Sustainable Freight Transport Initiative (page 9)
- CARB Staff Updates Board on Progress of SB 375 Implementation (page 13)
- CARB Holds Workshop on New Warranty Reporting Requirements for Diesel Retrofit Device Manufacturers and Installers (page 15)
- CARB Staff Holds First Workshop on Fiscal Year 2014-2015 Air Quality Improvement Program (AQIP) Funding Plan (page 17)
- CARB Issues Enforcement Advisory in Apparent Response to Sale of Uncertified Neighborhood Electric Vehicles (NEVs) and Electric Golf Carts (page 20)
- Legislative Update – Flurry of New Bills Introduced (page 21)
- Rulemaking Calendar (page 30)

## January 2014

- CARB Adopts EPA's "Phase 1" Greenhouse Gas Standards for On-Road Medium- and Heavy-Duty Vehicles, Along with Optional Low-NOx Standards (page 1)
- CARB Approves Annual Research Plan – Projects Include Assessments of the Need for Additional Controls on Off-Road Diesel Engines, Markets for Electric Vehicles, and Expansion of Requirements for Improved Trailer Aerodynamics (page 5)
- CARB Issues Mail-Outs Regarding Diesel Retrofits Addressing Installation and Maintenance Requirements Intended to Reduce Problems with Retrofits (page 11)
- CARB Issues Mail-Out Allowing Funding for Higher-Emitting "Lower-Emission" School Buses to Continue (page 12)
- CARB Provides Temporary Compliance Relief from its Ships-at-Berth Regulation (page 12)
- Rulemaking Calendar (page 13)

## December 2013

- CARB Holds Workshops on Proposed Amendments to Truck and Bus Rule – Staff Says No to Major Rule Changes Despite Strong Opposition from Regulated Community (page 2)
- CARB Staff Reports to Board on 2013 Air Quality and Climate Change Legislation (page 7)
- CARB Approves Contractor Research to Support Review of Advanced Clean Cars Program (page 10)
- Board Gets Update on the Enhanced Fleet Modernization Program (page 11)
- CARB Accepts Staff's Evaluation of Santa Barbara's Sustainable Communities Strategy (page 15)
- CARB Staff Holds Workshops Regarding "Red Sticker" Program for Off-Highway Motorcycles and ATVs Used for Competition – Ultimate Goal is to Reduce Emissions from Currently Uncontrolled Vehicles (page 16)
- CARB Staff Revives Proposal for New Evaporative Emission Standards for 2016 Model Year and Later Marine Vessels with > 40 Horsepower Gasoline Engines (page 25)
- CARB Holds Second Workshop to Discuss Amendments to Zero Emission Bus Regulation – Staff Appears Poised to Recommend a Large-Scale Demonstration Program Prior to Enforcement of Existing Program Purchase Requirements (page 28)
- CARB Adopts San Joaquin Valley's 2013 State Implementation Plan Showing Attainment of Revoked One-Hour Federal Ozone Standard (page 30)
- CARB Approves Proposed Area Designations for Revised Federal PM<sub>2.5</sub> Annual Standard – South Coast, San Joaquin Valley, and Parts of Imperial County Will Be Nonattainment Areas (page 33)
- Rulemaking Calendar (page 34)

## November 2013

- CARB Adopts Minor Revisions to the ZEV Regulation and Directs Staff to Address Compliance Issues Raised by Intermediate-Volume Manufacturers (page 2)
- CARB Receives Update on Advanced Clean Cars (ACC) Program – Staff, Board, and Most Stakeholders Assert Program is “On the Right Track” (page 7)
- CARB Approves Amendments to Mandatory Greenhouse Gas Reporting and Cap-and-Trade Regulations While Court Dismisses Chamber of Commerce Lawsuit (page 12)
- Board Hears Status Report on AB 32 Scoping Plan Update (page 18 )
- Board Receives Status Report on Truck and Bus Rule, and Staff Releases Advisory Providing Additional Flexibility (page 20)
- CARB Staff Releases Proposed Greenhouse Gas Regulations for Medium- and Heavy-Duty Vehicles (page 24)
- CARB Releases Proposed Alternative Diesel Fuel Regulations Which Will Impact Biodiesel Use in California (page 25)
- CARB Adopts First Stage of “Tractor Rule” Allowing Emission Reductions from Incentive Programs Targeting Mobile Agricultural Equipment to be Used as SIP Credits (page 29)
- CARB Staff Holds Workshop to Discuss Details of Newly Adopted Alternative Fuel Retrofit System Certification Procedures for Model Year 2004 and Later In-Use Vehicles and Engines (page 31)
- CARB Sets Guidelines for Carl Moyer Funding of Logging Truck Replacements – Up to \$60,000 per Vehicle Available (page 35)
- Rulemaking Calendar (page 36)

## October 2013

- CARB Holds Workshop on AB 32 Scoping Plan Update – Draft Plan Lacks Specifics (page 2)
- CARB Workshop Discusses Updates to On-Road Vehicle and Ocean-Going Vessel Emission Inventories (page 6)
- CARB Board Approves Amendments to Alternative Fuel Conversion Certification Procedures for On-Road Motor Vehicles and Engines (page 14)
- CARB Revises AB 118 Air Quality Improvement Program Budget for FY 2013-14 to Add \$64.5 Million Approved by Legislature (page 15)
- CARB Holds Workshop to Discuss Current Status of Zero Emission Bus (ZBus) Technology and Expected Near-Term Developments (page 19)
- CARB Holds Enhanced Vapor Recovery Equipment Workshop – Staff Proposes Field Study to Quantify Extent and Cause of False Overpressure Alarms for Facilities with In-Station Diagnostics (ISD) Systems (page 23)
- California Air Quality Update (page 25)
- Legislative Update (page 55)
- Rulemaking Calendar (page 59)



## September 2013

- Governor Brown Fills Final Vacancy on California Air Resources Board – Agribusinessman John Eisenhut Appointed to Seat Vacated by D’Adamo (page 2)
- Federal Appeals Court Rules Against Ethanol Industry and Refiners in LCFS Suit (page 2)
- CARB Releases Staff Report on Proposed Minor Revisions to the ZEV Regulation (page 3)
- CARB Holds Third Workshop to Discuss Alternative Diesel Fuel (ADF) Regulations (page 5)
- CARB to Begin Enforcement of Off-Road Diesel Engine Regulation in 2014 (page 7)
- CARB Releases Staff Proposal for In-Use Mobile Agricultural Vehicle Rule (page 9)
- CARB Staff Publishes Proposed Changes to Certification Process for Alternative Fuel Conversions (page 10)
- Legislative Update (page 13)
- Rulemaking Calendar (page 22)

## August 2013

- CARB Responds to Decision in the POET LLC Case Challenging the Low Carbon Fuel Standard Regulation (page 2)
- Potential Requirements for Renewable Diesel Fuel Under Proposed Alternative Diesel Fuel Regulations Eased by Joint CARB-Water Resources Control Board Statement (page 3)
- CARB Staff Proposes Amendments to the Cap-and-Trade Regulation and Holds a Workshop on Refinery Benchmarking (page 3)
- CARB Adopts Evaporative Emissions Standards for 2018 and Later Off-Highway Recreational Vehicles (page 6)
- CARB Approves AB 118 Air Quality Improvement Program Funding Plan – Program Will Continue Focus on Incentive Funding for ZEVs and Heavy-Duty Hybrids (page 11)
- CARB Adopts Staff’s Proposition 1B Goods Movement Emission Reduction Funding Recommendations and Program Guideline Revisions (page 16)
- CARB Adopts Minor Changes to Enhanced Vapor Recovery Regulations (page 18)
- CEC Holds Workshop on the State’s Role in Supporting Interoperability of Electric Vehicle Supply Equipment (page 20)
- CEC Holds Workshop to Discuss Revisions to Grant Solicitations to Facilitate Development of Hydrogen Fueling Infrastructure (page 23)
- Legislative Update (page 25)
- Rulemaking Calendar (page 32)

## July 2013

- Ethanol Producer POET LLC Wins Appeal in Suit Challenging CARB's Adoption of the Low Carbon Fuel Standard (page 2)
- CARB Holds Workshops on Update to the AB 32 Scoping Plan (page 3)
- Cap-and-Trade Activity Continues as CARB Staff Prepares for a Major Program Overhaul – Workshops Held on Compliance Requirements and Cost Containment, and Mandatory Reporting Amendments (page 5)
- CARB Staff Updates the Board on Its Review of the Bay Area's Draft Sustainable Communities Strategy (page 10)
- CARB Approves \$6 Million in Funding for FY 2013-2014 Research Projects (page 13)
- CARB Holds Third Workshop on Proposed In-Use Mobile Agricultural Vehicle Rule (page 18)
- Legislative Update (page 20)
- Rulemaking Calendar (page 28)

## June 2013

- CARB Holds LCFS Workshop Focused on Proposed Mechanisms for Avoiding Noncompliance and on Electricity Credits (page 2)
- CARB Staff Holds Workshops on LCFS Provisions Related to Crude CI Values and Low Complexity – Low Energy Use Refineries (page 6)
- CARB Holds Another Workshop to Discuss Alternative Diesel Fuel (ADF) Regulations (page 10)
- CARB Holds Workshop to Discuss Proposed Revisions to the ZEV Regulation (page 11)
- CARB Holds Workshop on Requirements for Natural Gas Suppliers Under the Cap-and-Trade Program (page 13)
- CARB Holds Workshop on Improved Mobile Source Inventory and Planning Tools (page 15)
- CARB Proposes Evaporative Emission Regulations for Off Highway Recreational Vehicles – High Compliance Costs Are Expected to Drive Some Models From California (page 20)
- ESW Clean Tech Acquires Cleaire and Completes Verification Transfer Requirements (page 24)
- Legislative Update (page 24)
- Rulemaking Calendar (page 35)

## May 2013

- Governor Brown Fills Two Air District Seats on California Air Resources Board (page 1)
- CARB Staff Presents Draft Investment Plan for Cap-and-Trade Auction Revenues to the Board (page 2)
- CARB Holds Workshop to Discuss Alternative Diesel Fuel Regulations – Main Focus is on Biodiesel Issues (page 5)
- CARB Holds Enhanced Vapor Recovery Equipment Workshop – Staff Proposes Minor Changes (page 9)
- CARB Holds Another Workshop on Changes to Procedures for Alternative Fuel Conversions (page 12)
- Legislative Update (page 14)
- Rulemaking Calendar (page 26)

## April 2013

- Richard Corey Appointed to CARB Executive Officer Position (page 1)
- CARB Holds Workshop to Discuss Proposed Changes to Low Carbon Fuel Standard (page 2)
- CARB Links Cap-and-Trade with Quebec Program and Releases 2013 Amendment Schedule; Lawsuit Brought by the Chamber of Commerce Moves Forward (page 5)
- CARB Hosts Two-Day Zero-Emission Freight Transport Symposium As Prelude to New Regulatory Program (page 8)
- CARB Holds Final Workshop on AB 118 Air Quality Improvement Program Funding Plan – Staff Proposes to Continue Program Focus on Incentive Funding for ZEVs and Heavy-Duty Hybrids (page 15)
- Smog Check Program Update (page 20)
- Legislative Update (page 52)
- Rulemaking Calendar (page 64)

## March 2013

- Board Member D’Adamo and Executive Officer Goldstene Leaving CARB for New Appointments (page 2)
- CARB Board Receives Update on Governor’s “ZEV Action Plan” (page 3)
- CARB Holds Workshop to Kick Off the Next Round of Amendments to the Low Carbon Fuel Standard Regulations (page 5)
- CARB Holds Workshop Addressing Greenhouse Gas Reductions from Heavy-Duty Vehicles – Proposals Include Adoption of Standards for New Vehicles, Optional NOx Standards and Extended Warranties, and Heavy-Duty ZEV Certification (page 9)
- CARB Holds Workshop on How the State Should Spend Money Generated by Allowance Auctions Under the Cap-and-Trade Program (page 13)
- CARB Holds Second Series of Workshops on Proposed In-Use Mobile Agricultural Vehicle Rule (page 16)
- CARB Updates Emissions Inventory for Recreational Vehicles – Revised Activity Estimates and Sales Projections Lead to Dramatically Lower Emission Estimates for the Category (page 20)
- CARB Approves Two Research Proposals and Proposed Research Plan for Fiscal Year 2013-2014 (page 22)
- CARB Reallocates \$4 Million in AQIP Funding to Truck Loan Assistance Program (page 26)
- CARB Hears Update on Truck Loan Assistance Program – Staff Requests Transfer of Funds from AQIP to Allow Loan Program to Continue Through August (page 27)
- CARB Issues Clarification that Repowers Using Replacement Engines are Eligible for Moyer Incentive Funding (page 28)
- Legislative Update (page 29)
- Rulemaking Calendar (page 37)

## February 2013

- Sacramento County Supervisor Phil Serna Appointed to New California Air Resources Board Seat, Mayor Ronald Loveridge Leaves the Board (page 2)
- CARB Outlines 2013 Program Priorities – Focus Will Be on Climate Change and More Coordinated Planning Efforts (page 3)
- Governor’s Office Releases “ZEV Action Plan” as a Roadmap to Utopia in California (page 5)
- CARB Releases Annual AB 32 Report to the Joint Legislative Budget Committee (page 7)
- Cap-and-Trade Implementation Continues – CARB Staff Holds Information-Sharing Workshop and Second Compliance Tracking System Webinar; February Auction Results Are Released; and Chamber of Commerce Lawsuit Continues to Move Forward (page 11)
- CARB Staff Briefs Board on Status of SB 375 Implementation in the San Joaquin Valley (page 15)
- CARB Approves PM2.5 SIP for the San Joaquin Valley Despite Opposition from Environmental Groups Seeking More Stringent Control Measures and Accelerated Implementation (page 17)
- CARB Approves 2012 South Coast Air Quality Management Plan (page 19)
- CARB Staff Releases “White Paper” Regarding Alternative Diesel Fuel Regulations (page 21)
- CARB Releases Revised Proposal for the Clean Fuels Outlet Regulation – Agency Characterizes Proposal as a “Regulatory Backstop” in Case Expected Legislation Fails to Pass (page 25)
- CARB’s Diesel Retrofit Programs Take Another Hit as Major Manufacturer of Verified Diesel Emission Control Devices Folds (page 26)
- CARB Extends Higher NOx Emission Criteria for Replacement School Buses Another Year Due to Inadequate Supply of Compliant Engines (page 27)
- Bureau of Automotive Repair Presents Smog Check Program Changes to BAR Advisory Group (page 28)
- Legislative Update (page 29)
- Rulemaking Calendar (page 34)



## January 2013

- U.S. EPA Issues Waiver for CARB's Advanced Clean Cars Program (page 2)
- CARB Issues Mail-Out on ZEV Innovative Transportation System Requirements, Formalizing Existing Policy (page 2)
- Cap-and Trade Updates – CARB Seeks Dismissal of Chamber of Commerce Suit Challenging Cap-and-Trade Regulation and Responds to Program Lawsuit; Holds a Workshop on Design of the Cap-and-Trade Compliance Instrument Tracking System Service (page 3)
- CARB Holds Workshop on Alternative Fuel Conversions – Staff Now Willing to Consider Changes to Requirements (page 5)
- CARB Issues Mail-Out Changing Agency Policy Regarding the Sale of Diesel Emission Control Systems (DECS) Prior to CARB Verification (page 7)
- CARB Holds Workshop on AB 118 Air Quality Improvement Program Funding Plan – Staff Expects to Continue Current Program Focus on Incentive Funding for ZEVs and Hybrid-Electric Vehicles (page 7)
- Bureau of Automotive Repair Announces Hearings Regarding Smog Check Program Changes (page 10)
- Rulemaking Calendar (page 11)

## December 2012

- CARB Staff Briefs Board on Cap-and-Trade Auction, Scoping Plan Update, and Other 2013 Activity (page 1)
- CARB Hears Summary of Recent Research Highlights, Approves Funding for Nine FY 2012-2013 Research Projects (page 4)
- CARB Approves Redesignation Requests for the San Diego and San Francisco Bay Areas with Respect to the Federal Eight-Hour Ozone and 24-Hour PM2.5 Standards, Respectively (page 11)
- CARB Holds Workshop on Proposed Evaporative Emissions Standards for Off-Highway Recreational Vehicles But Confronts Opposition from Industry (page 13)
- California Air Quality Update (page 18)
- Rulemaking Calendar (page 45)

## November 2012

- Lawsuit Challenges CARB's Authority to Continue Cap-and-Trade Program Carbon Allowance Auction – First Auction Proceeds as Planned (page 2)
- CARB Amends Advanced Clean Car Regulations to Align with Federal Standards (page 3)
- CARB Staff Updates Board on State Implementation Plan (SIP) Activities, and Board Approves Infrastructure SIP for Federal NO<sub>2</sub> Standard (page 6)
- CARB Board Hears Update on California Smog Check and Vehicle Retirement Programs – OBD-Only Tests to Begin in 2013 (page 7)
- CARB Staff Releases Advisory Circular Concerning Transport Refrigeration Units (page 10)
- CARB Holds Workshop on Proposed Updates to Proposition 1B Goods Movement Emission Reduction Program Guidelines – Staff Proposes Revisions to Eligibility Guidelines to Keep Pace with Implementation of CARB Regulations (page 11)
- CARB Holds Workshop on Proposed Revisions to the Carl Moyer On-Road Heavy-Duty Voucher Incentive Program – No Substantive Changes Proposed for Annual Guideline Updates (page 15)
- CARB Holds Enhanced Vapor Recovery Equipment Workshop – Staff Proposes to Continue Phase II EVR Program Despite EPA's Waiver of Federal Stage II Program Requirements (page 16)
- Rulemaking Calendar (page 20)

## October 2012

- CARB Hears Update from Staff on Status of Infrastructure Development for Zero Emission Vehicles (page 2)
- CARB Releases ZEV Credit Data for the 2011 Model Year – Data Indicate an Increase in Credit Trading Relative to 2010 (page 5)
- High Gas Prices Lead to Political Directive to CARB To Relax Gasoline RVP Limit for the Remainder of the Current RVP Control Season (page 5)
- CARB Adopts Changes to AB 32 Mandatory Reporting and Fees Regulations and Continues to Move Forward with Cap and Trade (page 7)
- CARB Staff Reports to Board on “Gear Up For Clean Truck Month” Program Focused on Enforcement of In-Use Diesel Regulations (page 10)
- Legislative Update (page 12)
- Rulemaking Calendar (page 15)

## **September 2012**

- CARB Staff Holds Workshops on Its “Vision” – Addresses Possible Future Scenarios for Mobile Source Technologies, Fuels, and Emissions Focused on Attainment of Ozone and Greenhouse Gas Goals (page 2)
- CARB Proposes Amendments to Align Light-Duty Greenhouse Gas Standards with Federal Requirements, as well as Minor Revisions to the LEV III and ZEV Regulations (page 6)
- Cap-and-Trade Program Development Continues – CARB Holds Workshop to Discuss Benchmarking and Allowance Allocation for Petroleum Refineries in the Second Compliance Period (page 10)
- CARB Staff Holds Public Workshop on Amending Interim Procedures for Heavy-Duty Hybrid Certification (page 12)
- CARB Holds Series of Workshops on Proposed In-Use Mobile Agricultural Vehicle Rule (page 14)
- Legislative Update (page 17)
- Rulemaking Calendar (page 22)

## **August 2012**

- CARB Adopts Heavy-Duty OBD Changes As Proposed By CARB Staff Over Industry Objections (page 2)
- CARB Approves Proposed Changes to the Verification Procedures for Diesel Emission Control Systems (page 14)
- CARB Staff Holds Workshop on Cap-and-Trade Emissions Leakage Research and Monitoring (page 18)
- CARB Temporarily Suspends “Resource Shuffling” Provision of the Cap-and-Trade Program at Request of the Federal Energy Regulatory Commission (page 21)
- CARB Staff Holds Workshop on Certification of Alternative-Fuel Conversions for New and Used Vehicles and Engines (page 22)
- CARB Issues Mail-Out Extending Deadline for Use of Lower- Emission School Bus Program Funds (page 24)
- Legislative Update (page 25)
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## July 2012

- CARB Board Hears Update on Status of Cap-and-Trade Program Implementation and Approves Proposed Amendments (page 2)
- CARB Staff Presents Its “Transformational” Plan for Achieving Air Quality and GHG Goals to the Board – “Vision for Clean Air” Offers Fantasy as a Solution to Impossible Goals (page 5)
- CARB Adopts AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2012-2013 (page 11)
- CARB Approves Fiscal Year 2012-2013 Research Plan – Proposed Projects Foreshadow Agency’s Future Regulatory Efforts (page 15)
- CARB Staff Holds Workshop Regarding Assignment of Carbon Intensity Values for Crude Oil under the Low Carbon Fuel Standard Regulation (page 20)
- CARB Holds Workshop to Discuss Proposed Changes to CaRFG3 Fuel Property Test Methods (page 24)
- California Energy Commission Holds Series of Workshops to Discuss Location and State Funding for Additional Hydrogen Dispensing Stations (page 25)
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## June 2012

- CARB Board Receives Briefing on the Need to Control Emissions of “Short-Lived” Climate Change Pollutants (page 1)
- CARB Addresses Cap-and-Trade Issues – Board Forms “Expert” Panels to Address Investment of Auction Proceeds and Sponsors a Stakeholder Meeting of the Cap-and-Trade Market Simulation Group (page 5)
- CARB Holds Workshop on Minor Revisions to Mandatory Greenhouse Gas Reporting Regulations (page 9)
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## **May 2012**

- CARB Holds Final Workshop on AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2012-2013 (page 1)
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- Rulemaking Calendar (page 15)

## April 2012

- Ninth Circuit Court of Appeals Allows CARB to Resume Enforcement of LCFS Regulations While Appeal of Fresno Court Verdict is Decided (page 2)
- Governor Announces \$120 Million Settlement Will Fund EV Charging Stations, Signs Executive Order Setting Target of 1.5 Million ZEVs in California by 2025 (page 3)
- California Air Resources Board Approves Final Regulation Orders for Advanced Clean Cars Regulations and Staff's Responses to Comments on Environmental Analysis (page 4)
- CARB Holds Workshop on Proposed Amendments to Heavy-Duty OBD Regulation (page 8)
- CARB Staff Updates Board on Review Status of Draft "Sustainable Communities Strategies" Prepared for Southern California and Sacramento Pursuant to Senate Bill 375 (page 15)
- Cap-and-Trade Activity: Board Chair Nichols Briefs Senate Committee on Implementation, and Staff Proposes Regulatory Changes Dealing with Linkage of California and Quebec Programs (page 18)
- CARB Approves Funding of \$5.4 Million for Eight Research Projects (page 21)
- Smog Check Update – Program Changes Planned (page 23)
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- CARB Staff Holds Workshop on Lifecycle Assessment of Crude Oil Production Within the LCFS Regulation (page 1)
- CARB Proposes Minor Changes to Attainment Designations For State Ambient Air Quality Standards (page 5)
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## February 2012

- CARB Adopts Advanced Clean Cars Package – Chair Nichols Focuses on Avoiding Changes that Could Impact an EPA Waiver Decision But Is Willing to Accept Threat of Litigation over the Clean Fuel Outlet Regulation (page 2)
- CARB Holds Workshop to Discuss Proposed Regulations Linking California’s and Quebec’s Cap-and-Trade Programs (page 12)
- CARB Proposes Changes to Diesel Retrofit Device Verification Procedures in Response to Economic Issues Affecting Device Manufacturers – Stakeholders and Staff Appear to Have Resolved Several Major Points of Disagreement (page 14)
- CARB Holds Workshop on AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2012-2013 (page 19)
- CARB to File Emergency Regulatory Amendment Extending Greenhouse Gas Registration and Reporting Deadlines for Large Trailer Fleets (page 22)
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## **January 2012**

- Low Carbon Fuel Standard Ruled Unconstitutional By Federal Court Following CARB LCFS Program Review and Adoption of Regulatory Changes – State to Appeal Court Ruling (page 1)
- CARB Responds to Congressman Darrell Issa’s Request for Information Regarding CARB’s Role in the Development of Greenhouse Gas Standards (page 7)
- CARB Issues Advisory Extending Greenhouse Gas Registration and Reporting Deadlines for Large Trailer Fleets (page 8)
- CARB Adopts Modifications to Spark-Ignited Small Off-Road Engine and Off-Road Diesel Engine Regulations – Relatively Minor Changes Will Generally Align CARB and EPA Rules (page 9)
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## December 2011

- CARB Releases Staff Reports for Advanced Clean Cars Package – Staff’s Proposals Strain Credulity (page 2)
- CARB Staff Presents Amended Penalty Policy to the Board – Stakeholders Object to Lack of Reduced Penalty Option for Non Emissions-Related Violations (page 11)
- CARB Staff Updates Board on Implementation of Environmental Justice Policies Over Past Decade (page 14)
- California Superior Court Finds in CARB’s Favor – Revised AB 32 Scoping Plan Analysis Found Adequate, Cap-and-Trade Program Moves Forward (page 16)
- CARB Staff Reports to Board on 2011 Air Quality and Climate Change Legislation (page 18)
- CARB Adopts Regulations for “Kit Cars” That Allow “Hobbyists” to Register Vehicles Built Using “Certified” Engines (page 21)
- CARB Approves Plan to Distribute At Least \$100 Million in Proposition 1B Goods Movement Emission Reduction Program Grants – Funds Earmarked Exclusively for Upgrades to Drayage and Other Trucks (page 23)
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## November 2011

- Governor Fills San Joaquin Valley District Position on California Air Resources Board (page 2)
- High Level of Activity Continues Related to Low Carbon Fuel Standard: CARB Staff Releases Proposed Reg Changes and Holds Two More Advisory Panel Meetings, While CEC Releases Preliminary Details of an Analysis Suggesting Potential Problems with LCFS Compliance (page 2)
- CARB Publishes “Summary” of the Advanced Clean Cars Regulatory Package to Coincide with President Obama’s Announcement of Federal 2017-2025 Model Year Fuel Economy/GHG Standards (page 6)
- CARB Approves “Final” Cap-and-Trade Regulation, Functional Equivalent Document, Adaptive Management Plan, and Amendments to AB 32 Fee Regulation (page 8)
- CARB Adopts Changes to TRU Regulation and Emission Inventory, But Board Directs Staff to Perform Further Work on Inventory (page 11)
- CARB Approves 2011 Amendments to CaRFG3 Regulations – Changes Include Minor Corrections to the Predictive Model, As Well As Minor Changes in Other Requirements (page 17)
- CARB Proposes Modifications to Spark-Ignited Small Off-Road Engine and Off-Road Diesel Engine Regulations – Relatively Minor Changes will Generally Align CARB and EPA Rules (page 19)
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## October 2011

- Former California Assemblyman Hector De La Torre Appointed to California Air Resources Board, Replacing Lydia Kennard (page 2)
- CARB Staff Provides Updates on Advisory Panel Activity and Holds Final Workshop on Proposed Changes to the LCFS Regulation (page 3)
- CARB's Diesel Retrofit Programs Take a Hit As Agency Suspends Sales of Two Verified Diesel Emission Control Devices (page 8)
- CARB Publishes Enforcement Penalty Policy – Agency's Stated Position is that All Violations Warrant Maximum Penalties Unless Violators Can Prove Otherwise (page 9)
- Cap-and-Trade Activity Continues – California Supreme Court Denies Petition to Halt Further Development of Program While Appellate Court Considers Adequacy of AB 32 Scoping Plan Analysis (page 10)
- CARB Releases ZEV Regulation Information on 2010 Vehicle Manufacturer Volume Status – Shows Minimal ZEV Credit Trading (page 11)
- CARB Approves Fiscal Year 2011-2012 Research Plan – Climate Change Projects Represent Over 30% of Recommended Funding (page 12)
- CARB Adopts Revisions to Cargo Handling Equipment Rule – Staff Provides Added Compliance Flexibility, Plus Additional Exhaust Opacity Testing Requirements (page 15)
- CARB Adopts Amendments to Enhanced Vapor Recovery Regulations – Staff Asserts New Requirement for Low- Permeation Gasoline Dispensing Hoses Will Save Money (page 20)
- CARB Adopts State Implementation Plan Revision for Federal Lead Standard Infrastructure Requirements – California's Lead Monitoring Network Will be Adequate for Compliance with More Stringent Federal Lead Standard by January 2012 (page 21)
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## September 2011

- CARB Staff Hosts Fourth Low Carbon Fuel Standard (LCFS) Panel Meeting and Holds Second Workshop on Proposed Changes to the LCFS Regulation (page 2)
- Cap and Trade Activity Continues – CARB Releases the Second 15-Day Package (page 6)
- CARB Approves Revised CEQA Analysis for the AB 32 Scoping Plan – Continues to Rely on Cap-and-Trade Implementation Despite Objections from Environmental Justice Groups (page 8)
- CARB Proposes Changes to TRU Regulation – Staff Proposal Fails to Provide Meaningful Compliance Flexibility and Faces Challenges on Costs and Benefits (page 14)
- CARB Proposes Modifications to Off-Road Diesel Engine Test Procedures to Harmonize with EPA Regulations (page 16)
- California Air Quality Update (page 18)
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## August 2011

- CARB Staff Holds Workshop on Proposed Changes to the Low Carbon Fuel Standard Regulation and Advisory Panel Efforts Related to Programmatic Review of the LCFS (page 2)
- CARB Holds a Public Workshop to Discuss Revisions to the Cap and-Trade Regulation and Releases the First of At Least Two 15-Day Packages (page 5)
- CARB Adopts AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2011-2012 (page 7)
- CARB Adopts Revisions to Ozone State Implementation Plans for San Joaquin Valley and South Coast Air Basins (page 10)
- CARB Holds Enhanced Vapor Recovery Equipment Workshop – Staff Proposes Development of On-Line Complaint Database to Address In-Use Equipment Problems (page 12)
- CARB Holds Second Workshop on Proposed Regulations for “Kit Cars” That Would Allow Hobbyists to Build Vehicles Using “Certified” Engines (page 15)
- California I/M Program to Drop Tailpipe Testing on OBDII-Equipped 2000 and Newer Model Year Vehicles (page 18)
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## July 2011

- CARB Holds Workshops on Clean Fuels Outlet and Advanced Clean Cars Regulations – Oil Industry is Vocal in Opposition to Mandate that It Provide Hydrogen Infrastructure, While Auto Industry is Mute in the Face of Aggressive Proposed Emissions and Fuel Economy Standards (page 2)
- Low Carbon Fuel Standard (LCFS) Rulemaking Activity Continues – CARB Releases Guidance Document and Holds Another Advisory Panel Meeting (page 18)
- CARB Releases Revised CEQA Analysis for the AB 32 Scoping Plan – Agency Continues to Back Cap-and-Trade instead of Command-and-Control Regulations for Achieving Remaining GHG Reductions Needed to Reach AB 32 Target for 2020 (page 20)
- CARB Holds Third Workshop on Proposed Revisions to Cargo Handling Equipment Rule – Staff Claims Proposal Provides Added Compliance Flexibility But It Also Adds Exhaust Opacity Testing Requirements (page 26)
- Board Adopts Revised Heavy-Duty Diesel In-Use PM Measurement Allowance for NTE Testing (page 31)
- CARB Adopts Changes to Ocean-Going Marine Vessel Fuel Regs – Route-Based “Cheating” Incentive is Eliminated, and 1% Sulfur Requirement is Delayed to 2014 (page 32)
- CARB Holds Another Workshop on TRU Regulation – Revised Inventory Leaves Little Room for Relief as Agency Piles on Administrative Requirements (page 35)
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- CARB Extends Exemptions for LSI Equipment Subject to In-Use Fleet Emission Requirements Due to Continued Unavailability of Verified Retrofit Systems (page 37)
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## June 2011

- CARB Releases New CEQA Analysis for the AB 32 Scoping Plan in Response to Judge's Order in Case Brought by Environmental Justice Groups (page 2)
- CARB Hosts Seminar on Potential of New Vehicle "Feebates" to Reduce GHG Emissions (page 5)
- CARB Staff Updates Board on California's Progress in Attaining NAAQS for Ozone – Increase in Nonattainment Areas is Predicted if More Stringent Federal Standards are Promulgated (page 7)
- CARB Proposes Further Changes to Diesel Retrofit Device Verification Procedures in Response to Economic Issues Affecting Device Manufacturers (page 9)
- CARB Faces Legal Challenges to In-Use On-Road Diesel and Heavy-Duty OBD Regulations (page 12)
- CARB Holds Workshop on Proposed Regulations for "Kit Cars" That Would Establish Engine Certification Requirements (page 13)
- Board Hears Update on CalNex 2010 Progress – Results of CARB/NOAA Field Study Focused on Air Quality and Climate Change to be Published Next Year (page 15)
- Legislative Update (page 17)
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## May 2011

- Latest Judicial Action in Suit by Environmental Justice Groups Against AB 32 Scoping Plan Halts Implementation of the AB 32 Cap-and-Trade Regulation but Not Other GHG Regulations (page 2)
- LCFS Advisory Panel Meets to Discuss Workplan for Review of the Program (page 3)
- CARB Holds Workshop on Amendments to Transport Refrigeration Unit Regulation – Focus is on Revised Emission Inventory (page 7)
- CARB Staff Proposes Revisions to PM2.5 State Implementation Plans for San Joaquin Valley and South Coast Air Basins (page 9)
- In Response to New Legislation Duplicating CARB’s Renewable Energy Standard, CARB Abandons Regulation – But Requirements Essentially Stay Unchanged (page 11)
- CARB Adopts Revisions to Moyer Program – Changes Expand Eligibility in Light of Delayed Implementation of On- and Off-Road Diesel Regulations (page 13)
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## **April 2011**

- Negotiations Over Scope of Pending AB 32 Court Order Break Down – Final Outcome Still Unknown (page 2)
- CARB Prevails in Lawsuit Brought by Pacific Merchant Shipping Association – Ninth Circuit Court of Appeals Rules that CARB has Authority to Regulate Fuel Used by Ocean-Going Vessels Operating within 24 Nautical Miles of the California Coastline (page 4)
- CARB Workshop Discusses Enforcement Penalty Policy Report – Staff Claims Improved Program Transparency Exceeds SB 1402 Requirements (page 5)
- CARB Proposes Further Amendments to Transportation Refrigeration Units Regulation – Compliance Extensions and Additional Requirements Discussed (page 7)
- CARB Holds Another Workshop on AB 118 “Air Quality Improvement Program” Incentive Funding for FY 2011-12 (page 10)
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## March 2011

- CARB Revises Final Resolution Adopting the Cap-and-Trade Regulation and Posts Activities Schedule (page 2)
- CARB Staff Presents New LCFS Carbon Intensity Values to Executive Officer for Approval (page 4)
- CARB Staff Updates Board on Feasibility of SCAG's SB 375 Target for 2035 (page 6)
- Final Decision In Environmental Justice Groups Suit Against AB 32 Scoping Plan May Halt Implementation of the AB 32 Regulations (page 8)
- CARB Staff Issues Manufacturers Advisory Correspondence Outlining ZEV Reporting Format (page 10)
- CARB Holds Second Workshop on Proposed Revisions to Cargo Handling Equipment Rule – Staff Proposes Added Flexibility (page 12)
- CARB Discusses Updates to Strategic Plan for Research Funding and Approves 17 Research Proposals (page 14)
- Smog Check Program Update – Roadside Data Indicate OBD-Equipped Vehicles Are Not Performing as Well as Predicted by EPA (page 18)
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- Tentative Court Decision Could Present CARB with Problems in Implementing AB 32 Scoping Plan and Associated Regulations (page 3)
- CARB Staff Proposes to Add 28 New Fuel Pathway Carbon Intensity Values to Low Carbon Fuel Standard (page 4)
- CARB Staff Holds First Meeting of LCFS Advisory Panel – Participants Say More Meetings Are Needed to Resolve Issues and Prepare Report by January 2012 Deadline (page 6)
- CARB Staff Proposes Changes to AB 32 Fee Regulations to Align Them with the Mandatory Reporting Regulation (page 11)
- CARB Holds Workshop on Proposed Changes to Ocean-Going Marine Vessel Fuel Regs to Eliminate Route-Based “Cheating” (page 14)
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## January 2011

- CARB Adopts Cap-and-Trade Regulation, But Board Leaves Most Details for CARB Staff to Resolve (page 1)
- CARB Amends On- and Non-Road Diesel Regulations – Operators Get Short-Term Compliance Relief (page 5)
- CARB Continues Work on Assessing Emission Impacts and Performing Multimedia Evaluation of Biodiesel and Renewable Diesel – Staff Plans to Present Proposed Biodiesel Specification to the Board in November (page 10)
- CARB Holds Workshop on AB 118 "Air Quality Improvement Program" Incentive Funding for FY 2011-12 (page 12)
- CARB Staff Holds Workshops on Moyer Program Revisions – Proposed Changes Expand Eligibility in Light of Revisions to On- and Off-Road Diesel Regulations (page 14)
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## December 2010

- CARB Holds Workshop on Advanced Clean Cars Program – Proposal Amounts to a Major Overhaul of Agency’s Existing Vehicle Regulations (page 2)
- CARB Staff Briefs Board on Progress of Low Carbon Fuel Standard Implementation – Carbon Intensity Values for Corn Ethanol Set to Drop as Indirect Land Use Impact to be Halved (page 9)
- CARB Staff Updates the Board on the Scope of Changes to Off Road and On-Road Diesel Emission Inventories in Advance of the Board’s Consideration of Regulatory Changes (page 12)
- CARB Adopts Amendments to the Transportation Refrigeration Units Regulation – Additional Time Provided for Compliance with Ultra Low Emission Standard (page 15)
- CARB Holds Workshop on Proposed Revisions to Cargo Handling Equipment Rule – Staff Seeks to Add Flexibility to Address Implementation Issues (page 17)
- CARB Staff Holds Workshop on Proposed Revisions to Carl Moyer Program – Executive Officer Likely to Approve Minor Proposed Changes (page 19)
- Rulemaking Calendar (page 20)

## November 2010

- CARB Staff Updates Board on Collaborative Effort with EPA and NHTSA to Assess Technical Feasibility of New Fuel Economy Standards for 2017-2025 Model-Year Vehicles – Staff Concludes that Aggressive Electric Car Deployment is Needed to Meet the 2050 Goal (page 2)
- CARB Staff Briefs Board on Implementation of AB 32 Scoping Plan and Upcoming Major Regulatory Proposals for Cap-and-Trade and Advanced Clean Cars (page 5)
- CARB Releases Proposed Cap-and-Trade Regulation – Allowance Allocation Mechanism Remains a Question (page 7)
- CARB Releases Proposed Amendments to In-Use On-Road Diesel Regulations – Proposal Still Requires that Virtually All Trucks Have 2010+ or Later Model-Year Engines by 2023 (page 13)
- CARB Releases ISOR and Analysis for Proposed Amendments to the In-Use Off-Road Diesel-Fueled Vehicle Fleet Regulation and Large Spark-Ignition Fleet Requirements (page 16)
- CARB Approves Fiscal Year 2010-2011 Research Plan – Staff Proposes Research Programs Costing \$6.4 Million (page 20)
- CARB Amends Periodic Smoke Inspection Program (PSIP) to Eliminate Duplicative Testing Due to Inclusion of Diesel Vehicles in the Smog Check Program (page 22)
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## October 2010

- CARB Holds Workshop on Potential Changes to Regulations for In-Use On-Road and Off-Road Diesel Vehicles, and Large Spark Ignited Engines (page 2)
- CARB Adopts SB 375 Greenhouse Gas Emission Reduction Targets (page 4)
- CARB Adopts California Renewable Electricity Standard – Utilities Required to Use Renewable Energy to Meet 33% of Electricity Demand in 2020 (page 8)
- CARB Holds Workshop on Proposed Changes to Ocean-Going Marine Vessel Fuel Regs to Eliminate Route-Based “Cheating” (page 13)
- CARB Staff Holds Workshops on Carl Moyer Program Revisions – Proposed Changes Add New Equipment Categories, Relax and Expand Program Eligibility Requirements (page 14)
- CARB Issues Advisory on Low Carbon Fuel Standard Reporting Requirements (page 15)
- Legislative Update (page 16)
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## September 2010

- CARB Workshop on Revised Inventories Related to In-Use On-Road, and Off-Road Regulations – Agency Inventories Used to Justify Adoption of Regulations Were Inflated (page 1)
- CARB Holds Second 2010 Fuels Workshop – Staff Proposes Changes to CaRFG3 and E85 Regulations, and Specifications for E10 Certification Fuel (page 7)
- California Air Quality Update (page 12)
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## **August 2010**

- CARB Staff Holds SB 375 Workshop to Discuss Draft GHG Reduction Targets and Releases Staff Report Proposing Final Targets (page 1)
- CARB and EPA Hold Joint Workshop to Discuss Certification of Selective Catalyst Reduction (SCR) Equipped Engines (page 5)
- CARB Proposes More Changes to Transport Refrigeration Unit (TRU) Regulation – Standards Relaxed for 2003 Engines Due to Lack of Retrofits (page 14)
- CARB Proposes Changes to School Bus Retrofit Requirements – Phase-In of Retrofits Delayed (page 16)
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## July 2010

- CARB Holds More Workshops on Amendments to On-Road, Off-Road, and Tractor-Trailer Greenhouse Gas Rules (page 2)
- CARB Staff Holds Workshop on Cap-and-Trade – Cost-Containment Options and Updates on Offsets and Linkage to Other Programs Are Discussed (page 5)
- CARB Staff Briefs Board on Status of Efforts to Develop SB 375 Targets (page 8)
- Board Adopts Staff Recommendations for More Measures to Curb Rail Emissions – Failure to Meet Voluntary Targets will Trigger Regulatory Action (page 11)
- CARB Adopts AB 118 Air Quality Improvement Program FY 2010-11 Funding Plan (page 17)
- CARB Adopts Staff Proposal to Add Three Additional Vessel Types to Existing Commercial Harbor Craft Regulation (page 19)
- CARB Holds Workshop on Changes to Vapor Recovery Regulations (page 22)
- CARB Holds First Workshop to Discuss Rule Development for Refueling Systems on Recreational Vehicles (RVs) and Truck/Trailers (page 24)
- Legislative Update (page 25)
- Rulemaking Calendar (page 32)

## June 2010

- CARB Holds Workshops on LEV III and Clean Fuels Outlet Regulations – Staff is Pushing Vehicle Weight Reductions, Emission Standards for Black Carbon, and EV/Fuel Cell Vehicle Infrastructure (page 2)
- CARB Staff Sends Memorandum to Board Summarizing the Status of the Low Carbon Fuel Standard – Claims Implementation is “On Pace” for 2011 (page 9)
- CARB Staff Holds Workshop on Proposed Cap-and-Trade Regulation Focused on GHG Emission Allowance Allocations (page 14)
- CARB Holds Second Workshop on Proposed Motor Vehicle Fuel Specifications for Biodiesel and Renewable Diesel Fuels – Staff Tries to Diffuse Stakeholder Objections to Proposed Biodiesel Blend Limits (B20 or Lower) and NOx Mitigation (page 14)
- CARB Holds Workshop on Specifications for Natural Gas Used to Fuel Vehicles – Staff Being Pushed to Revise ~20 Year Old Specifications to Address Issues with Gas Supply (page 17)
- CARB Holds Workshop on Transportation and Land Use Planning (SB 375) Requirements to Reduce GHG Emissions – Regional Targets to be Proposed in Mid-August (page 20)
- Legislative Update (page 22)
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## May 2010

- CARB Staff Holds Workshop on Changes to ZEV Mandate That Will Increase Required Sales Volumes and More Closely Link ZEV Program With CARB's Fuel Economy Regulations (page 2)
- CARB Board is Briefed on Status of In-Use On- and Non-Road Diesel Regulations; Staff Holds Workshop to Discuss Emission Inventory Errors (page 5)
- Workshop Held to Discuss CARB Staff Proposal for Evaporative Emission Controls for Motorcycles and All-Terrain Vehicles – Manufacturers Question Feasibility and Cost-Effectiveness of Proposal (page 9)
- AB 32 Activities Continue – Board Hears Conclusion of Updated Analysis of the Economic Impacts of AB 32 (page 13)
- CARB Holds Workshop on Proposed Regulations Targeting Evaporative Emissions from Spark-Ignition Marine Vessels – Industry Voices Support for Program That Begins with 2012 Model Year (page 15)
- CARB's Air Quality Maritime Working Group Meets to Discuss Issues Related to Use of Low Sulfur Distillate Fuel in Ocean-Going Marine Vessels – Staff says Industry is Largely Compliant, Has Moved Beyond Fuel Switching "Learning Curve" (page 17)
- Legislative Update (page 20)
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## April 2010

- CARB Staff Holds Workshop to Revise “Clean Fuels Outlet” Regulation Adopted in 1990 – Proposed Changes Would Impose Another Major Burden on State’s Transportation Fuel Providers (page 2)
- CARB Holds Fuels Workshop – Changes Proposed to CaRFG3 Regs and E85 Specifications (page 4)
- AB 32 Activities Continue – Board Hears EAAC Recommendations Regarding Emission Allocations and Briefing on Updated Analysis of the Economic Impacts of AB 32 (page 5)
- CARB Proposes Revisions to Transport Refrigeration Unit (TRU) Regulation – Emission Standards and Compliance Dates Relaxed for Older Engines Due to Lack of Verified Retrofit Options (page 7)
- CARB Adopts Changes to Lower Emission School Bus Program and Proposition 1B Goods Movement Emission Reduction Program Guidelines (page 9)
- CARB Holds Workshop to Discuss Engine Certification Durability Requirements – Staff Says More Rigorous Interpretation of Certification Procedures is Needed to Ensure In Use Compliance (page 12)
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## March 2010

- CARB Holds First Workshop on LEV III Regulations that Will Combine More Stringent Criteria Pollutant and GHG Emission Requirements for 2014 to 2022 Model-Year Vehicles (page 2)
- CARB Adopts Changes to Pavley Regulations that Accept Compliance with Federal Requirements for the 2012 to 2016 Model Years (page 7)
- CARB Chair Mary Nichols Tries to Squelch Use of Public Comment Period at Board Hearing by Cool Cars Group (page 9)
- CARB Suffers Setbacks on GHG Regulations – Agency Abandons Cool Cars Regulation and Tire Pressure Regulations Are Rejected by OAL (page 11)
- Board Hears Staff Recommendations for More Measures to Curb Rail Emissions – Directs Staff to Develop Regulatory Strategy Instead of Voluntary Cooperation (page 11)
- CARB Holds Hearing on Petition to Suspend Implementation of In-Use Off-Road Regulation – Board May Consider Changes Later This Year (page 14)
- More Action on Cap-and-Trade – Board is Briefed on Offsets and Schwarzenegger Comes Out in Opposition to Auction of Emission Allocations (page 15)
- CARB Holds Workshop on Changes to Vapor Recovery Regulations (page 16)
- CARB Releases Report Indicating Many Smog Check Stations Are Falsifying Repair of Failed Vehicles – Proposed Legislation Would Make More Effective Enforcement Possible (page 17)
- Legislative Update (page 20)
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## February 2010

- CARB Holds Workshop to Address a Score of Issues Related to the Low Carbon Fuel Standard (page 2)
- CARB Holds Workshop on Proposed Motor Vehicle Fuel Specifications for Biodiesel and Renewable Diesel Fuels – Biodiesel to be Limited to B20 or Lower Blends with Mitigation Required to Ensure No Increase in NOx Emissions (page 5)
- CARB Holds Workgroup Meeting on “Diesel Fuel Comparison Study” (page 7)
- CARB Holds “Final” Workshop on Regulations to Establish Environmental Standards for Hydrogen Used as a Transportation Fuel in California (page 8)
- Refiners and Truckers File Suit Against CARB Over LCFS (page 10)
- CARB Staff Briefs Board on Status of Efforts to Develop Cap-and-Trade Regulation – Board Members Appear Aligned with Environmental Groups in Favor of 100% Auction of Emission Allocations and Severe Restrictions on Offsets (page 11)
- CARB Holds Workshop to Discuss Proposed Regulations That Would Require Vehicles with GVWR of 10,001 to 19,500 Pounds to be Hybrids Beginning With the 2015 Model Year (page 13)
- CARB Issues Mail-Out Clarifying Zero-Emission Bus Purchase Requirements for Transit Agencies (page 14)
- CARB Holds Workshop on Proposed Changes to In-Use On-Road Diesel Regulation to Provide “Near Term” Relief – CARB Staff Cite SIP Commitments and Federal Requirements as Barriers to Providing Real Relief (page 14)
- CARB Staff Holds Workshops and Releases Proposed Revisions to the “Lower Emission” School Bus Program and Carl Moyer Program (page 16)
- CARB Adopts Amendments to Diesel Retrofit Verification Procedures (page 17)
- CARB Staff Responds to Board on Industry Push for Reform of CARB Enforcement Program – Staff Tells Board All is Well (page 19)
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## January 2010

- CARB to Consider Changes to Pavley Regulations that Would Accept Compliance with Federal Requirements for the 2012 to 2016 Model Years (page 2)
- CARB Releases Results of an “Independent Scientific Review” of Staff’s ZEV Assessment – Reviews Generally at Odds with CARB Staff’s Rosy Findings (page 4)
- CARB Sued over LCFS by Ethanol Industry (page 6)
- CARB Holds Cap-and-Trade Workshop as Details Emerge Indicating that Cap-and-Trade Will Be a Carbon Tax (page 7)
- California Economic and Technology Advancement Advisory Committee (ETAAC) Publishes Report Supporting Investment in GHG Reduction Technologies as a Means to Strengthen California’s Economy (page 9)
- Despite State Budget Woes, CARB Continues to Push Incentive Programs (page 11)
- CARB Issues Request for Production Data to Determine Annual Certification Fees (page 13)
- California Air Quality Update (page 14)
- Legislative Session Reconvenes (page 38)
- Rulemaking Calendar (page 39)

## December 2009

- CARB Board Hears Summary of Staff's Plans to Modify the ZEV Mandate in 2010 to Increase Required ZEV Sales Volumes, Revive Clean Fuel Outlet Regulations, and Link ZEV Program to New Vehicle Fuel Economy Standards (page 1)
- Controversy Continues to Swirl Around CARB's Regulations for In-Use On- and Off-Road Diesels (page 7)
- CARB Hears SB 375 Recommendations for GHG Reduction Targets for Land-Use Planning – Road Ahead Looks Contentious (page 11)
- CARB Staff Releases "Preliminary" Draft Proposed Cap-and-Trade Regulation – Draft Establishes Framework but Omits Details on Key Issues (page 13)
- Despite California's Fiscal Woes, CARB Approves More Than \$2 Million in Research Projects (page 18)
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## **November 2009**

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- Following Adverse Court Decision, CARB Quietly Abandons Vehicle Warranty Reporting and Recall Regulations Adopted in 2007 (page 6)
- CARB Staff Updates Board on Health Impacts of Diesel PM Emissions Amid Controversy Due to Falsified Staff Credentials and Withholding of Information from Board Members (page 8)
- More AB 32 Activity – CARB Holds Workshops on AB 32 Cap-and-Trade Regulation and AB 32 Economic Analysis, and Board Hears Update on Scoping Plan Implementation (page 10)
- CARB Staff Issues Test Report Concluding that “Cool Car” Regulation Will Not Create Problems with Cell Phones, GPS Devices, and Other Electronics (page 14)
- CARB Holds Workshop to Discuss Emission Credits for Electric Powered Lawn and Garden Equipment (page 15)
- CARB Kicks Off Another Round of Revisions to Carl Moyer Program Guidelines (page 16)
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- CARB Adopts Amendments to Pavley Standards – Changes Implement First Two Provisions of May 2009 Agreement Between EPA, CARB, and Automakers (page 14)
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- CARB Board Approves \$5 Million Research Plan for 2009–2010 Fiscal Year – Trucking and Construction Industry Voice Concerns Regarding the Research Approval Process (page 23)
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- CARB Issues Mail-Out Providing Guidance for Heavy-Duty OBD Certification (page 5)
- CARB Holds Workshop on Idling Restrictions for Cargo Handling Equipment – Staff Claims Reductions in GHG, PM, and NOx Emissions Could be Achieved While Saving Operators Money (page 5)
- CARB Staff Holds Final Workshop on Proposed AB 32 Administrative Fee Regulation and Board Adopts Staff Proposal (page 7)
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- Coalition of Industry Trade Associations Asks CARB to Review the Agency’s Enforcement Programs and to Better Align Them With Those of the U.S. EPA (page 5)
- CARB Holds Workshop on Low Carbon Fuel Standard Regulations and Changes That Lie Ahead (page 7)
- CARB Adopts Proposed Changes to In-Use Off-Road Regulation Mandated by the Legislature (page 11)
- CARB Agrees to Delay Implementation of Zero Emission Bus (ZBus) Regulation Due to Problems With Technology Development – Staff Says Focus of Rule Should Shift to Greenhouse Gas Reductions (page 17)
- CARB Staff Holds Third Workshop on Ocean-Going Vessel Speed Reductions – Voluntary and Regulatory Options Still Being Considered (page 20)
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- CARB Issues Advisory Regarding Compliance With In-Station Diagnostics Deadline Under Enhanced Vapor Recovery Program (page 24)
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- CARB Staff Briefs Board on Status of AB 32 Scoping Plan Implementation (page 2)
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- Board Hears that Implementation of Key Measures in Statewide MOU with Railroads is Complete – Staff Will Bring Recommendations for Additional Measures to the Board in September (page 10)
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- CARB Holds Workshop on Proposed Amendments to Verification Procedures for Retrofit Diesel Emission Control Devices (page 12)
- CARB Discusses Possible Regulation for Portable Refueling Stations (PRS) and Components (page 14)
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- CARB Hears Update on Staff Research Regarding the Impact of PM Trap and SCR Systems on the Physiochemical and Toxicological Properties of Diesel Exhaust Emissions (page 6)
- CARB Staff Releases Proposed Changes to In-Use Off-Road Regulation Mandated by the Legislature (page 7)
- CARB Staff Releases Proposed “Cool Cars” Regulation – Staff’s Cost-Benefit Analysis is Plagued with Mistakes That Lead to Erroneous Conclusions (page 11)
- CARB Holds Workshop on Zero Emission Bus Technology Review – Staff is Poised to Recommend Another Delay in Rule Implementation Due to Slow Progress of Technology (page 14)
- CARB Holds Workshop on Proposal to Add Crew and Supply Vessels to Existing Commercial Harbor Craft Regulation (page 17)
- Stream of CARB Workshops on AB 32 Cap-and-Trade Regulation Continues (page 20)
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## May 2009

- CARB Adopts Low Carbon Fuel Standard Regulations, But Major Changes May Lie Ahead (page 2)
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- CARB Holds Workshop on Legislatively Directed Changes to the Agency's In-Use Off-Road Diesel Regulation (page 11)
- CARB Adopts AB 118 Air Quality Improvement Program (AQIP) Guidelines and FY 2009-10 Funding Plan (page 14)
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## **April 2009**

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- CARB Approves Regulations Requiring Automotive Service Facilities to Check Tire Pressure (page 6)
- CARB Releases Proposed Revisions to Heavy-Duty OBD Regulations – CARB Expands and Complicates Requirements While Also Proposing an Enforcement Regulation That Includes Mandatory Recall Provisions (page 9)
- CARB Holds Workshop to Discuss Requirements for “Plug-In Hybrid” (PHEV) Conversions (page 13)
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## March 2009

- CARB Staff Briefs Board on Status of AB 32 Scoping Plan Implementation and Appoints Six New Members to the AB 32 Economic and Technology Advancement Advisory Committee (page 2)
- CARB Releases Proposed LCFS Including Details of Unrealistic Economic and Environmental Analyses that Hide Cost Increases and Double Count Benefits of Other Regulatory Programs (page 4)
- CARB Conducts Public Consultation Meeting to Discuss Policy Options for Evaluation of New Vehicle “Feebates” Based on Fuel Economy – Preliminary Study Results Due in the Fall (page 9)
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- CARB Staff Briefs Board on 2009 "Action Plan" – Agency Will Focus on Diesel PM and "Climate Change" Regulations That Include the Low Carbon Fuel Standard and Changes to the ZEV Mandate (page 4)
- CARB Holds Workshops on AB 32 Scoping Plan Implementation and Cap-and-Trade Regulation (page 6)
- CARB Holds Another LCFS Workshop – Controversy Surrounding Ethanol Continues and CARB's Economic Analysis Claims Cost Savings for All Scenarios (page 11)
- CARB Holds Workshop on Fee Regulations Being Imposed to Pay for the "Administrative Costs" of AB 32 Implementation – Staff Proposal Likely to be Equivalent to a Tax on Fuels (page 16)
- CARB Appoints SB 375 Advisory Committee for Establishing VMT Reduction Targets as Part of AB 32 (page 18)
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- CARB Adopts Regulations Targeting NO<sub>x</sub>, PM, and CO<sub>2</sub> Emissions from In-Use On-Road Diesel Vehicles – Board Claims That, Despite Recession, California Cannot Afford to Delay Implementation of Costly Programs (page 2)
- CARB Staff Holds Workshop to Discuss Proposed Minor Changes to In-Use Off-Road Diesel Vehicle Regulations (page 9)
- U.S. EPA Finally Issues a Waiver of Clean Air Act Preemption for CARB's Transport Refrigeration Unit Regulation – Move Portends Waivers for All of CARB's In-Use Vehicle Regulations (page 11)
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## December 2008

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- CARB Unanimously Adopts AB 32 Scoping Plan – Board Extols Its Leadership Role, Stakeholders Offer Praise and Criticism of the Plan (page 2)
- CARB Holds Another Low Carbon Fuel Standard Workshop as Staff Developing the Regulation Appears Overwhelmed and Corn Ethanol Interests Attack over Indirect Land Use Issues (page 11)
- CARB Adopts Amendments to Large Spark Ignition Engine Regulations and Small Off-Road Engine Regulations (page 16)
- CARB Releases Proposed Test Procedures and Regulatory Changes to Address Issues Involving “Blended” Plug-In Hybrids and Plug-In Hybrid Conversions (page 21)
- CARB Staff Proposes Minor Changes to In-Use Off-Road Diesel Vehicle Regulations and Will Update Board on Development of Retrofit Technology and Implementation of Regulatory Requirements – Staff Pronounces that All is Well (page 24)
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- CARB Issues Another Transport Refrigeration Unit Advisory – Initial Enforcement Is Now Being Delayed By At Least Six Months (page 26)
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## November 2008

- CARB Updates Board on Proposed AB 32 Scoping Plan – Board to Consider Adoption of Plan at December Hearing (page 2)
- Staff Updates Board on Status of Ozone Attainment Plan for Sacramento Region – Revised Modeling Shows Attainment of Standard by the Required 2018 Deadline (page 8)
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- Fifth Annual Conference on Climate Change in Sacramento Includes Zero Discussion of Recent Research Showing Effect of Greenhouse Gas Emissions on “Global Warming” Has Been Exaggerated – Stanford Professor Stephen Schneider Advocates Voting Out Republicans to Address Climate Change; His Wife Says Fighting Climate Change Requires “Asking Our Children Not to Have the Highest Quality of Life” (page 8)
- CARB Announces “Public Consultation” Meeting to Discuss Scope of Work for a Research Project that Would Evaluate a New Vehicle Feebate Program as a Replacement or Adjunct for CARB’s AB 1493 New Vehicle Fuel Economy Standards (page 27)
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- CARB Adopts Guidelines for AB 118 Incentive Giveaways (page 35)
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- CARB Holds Third Workshop on Test Procedure Changes for ZEVs and Hybrid Electric Vehicles (HEVs), and Plug-in Hybrid Electric Vehicles (PHEVs); Board Hearing Delayed to December (page 47)
- CARB Issues Another “Status Update” on Enforcement of Transportation Refrigeration Unit Regulations Despite Lack of U.S. EPA Waiver (page 53 )
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## September 2008

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- CARB Holds Workshop on Emissions Testing Program Comparing CARB Diesel to Federal Diesel Fuel – Long-Overdue Testing Program to Begin by End of Year (page 7)
- CARB Staff Holds Workshop on Proposed Regulations That Would Force Use of Low Rolling-Resistance Tires and Aerodynamic Devices on Heavy-Duty Trucks Operating in California by 2014 to Reduce CO2 Emissions (page 9)
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- CARB Staff Holds AB 118 Air Quality Improvement Program Workshop on Principles and Source Categories for \$50 million/year Funding Program and for Heavy-Duty Vehicle Air Quality Loan Program (page 18)
- CEC Staff Holds AB 118 Workshop with Advisory Committee to Review Its Revised Investment Plan – Staff Responds to Recent Committee Criticisms with “Goal-Oriented” Funding Allocation Based on Estimated Greenhouse Gas Emission Reductions (page 23)
- CARB and Bureau of Automotive Repair Hold Workshop to Discuss AB 118 Enhanced Fleet Modernization Program – May Include Vouchers to Assist with New Vehicle Purchase (page 30)
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- CARB Adopts Ocean-Going Ship Rule – Staff Circumvents Adverse Court Decision via the Use of an In-Use Fuel Standard, Rather than Emission Standards (page 27)
- CARB Adopts Amendments to Regulations Covering New Spark-Ignition Marine Engines and Boats – Relaxation of Emission Standards for High-Performance Boats Exchanged for Evaporative Controls (page 32)
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## July 2008

- CARB Staff Briefs Board on AB 32 Scoping Plan – Staff Claims Increases in Energy Efficiency Will Result in Overall Cost Savings (page 2)
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- CARB Holds Another Workshop on Proposed Regulations for In Use On-Road Heavy-Duty Diesel Trucks – Little Has Changed in Either Staff’s Proposal or the Response of the Affected Industry (page 14)
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- CARB Holds Workshop on the AB 118 “Anti-Backsliding” Guidelines – Staff Plans to Allow Criteria and Toxic Emission Increases in Exchange for Greenhouse Gas Reductions from Fuel Projects (page 26)
- CARB to Conduct Emissions Testing Program Comparing CARB Diesel to Federal Diesel Fuel – Long-Overdue Program Now Appears to Be a Million-Dollar Boondoggle (page 30)
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- CARB Hears Update on Enhanced Vapor Recovery Stage II System Implementation – Board Takes Staff Recommendation, Says No to Extensions of the April 2009 Deadline (page 34)
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## June 2008

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- CARB Adopts Staff's Proposed FY 2007-08 Proposition 1B Goods Movement Emission Reduction Program Grants – \$221 Million to be Distributed by Fall of 2008 (page 6)
- CARB Hears Update on AB 32 Transportation Sector Implementation – Staff Continues with Development of a Framework for Integrating Land Use Planning and Transportation (page 10)
- CARB Holds Workshop on AB 32 Scoping Plan “Policy Scenarios” – Agency Appears Headed Toward a Primarily Command-and-Control, Rather than Market-Based, Strategy (page 14)
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- CARB Receives Fifth Update on 2005 Statewide Agreement with Railroads – Staff Highlights Accomplishments, Board Members Call for More and Expedited Controls (page 4)
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- CARB Adopts Resolution Revising Transportation Conformity Emissions Budget for South Coast Because of U.S. EPA Concerns with the “State Strategy” for Achieving SIP Emission Reductions – EPA Action Seems to Signal that South Coast SIP Will Be Rejected (page 10)
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- CARB Staff Holds Workshop on New Regulations for “Critical Emissions Control Parts” Used on Motorcycles – Manufacturers of Aftermarket Exhaust Systems with Catalysts Would Face Extraordinary Requirements (page 27)
- CARB Holds Workshop on Proposed Amendments to Regulations Covering New Spark-Ignition Marine Engines and Boats – Relaxation of Emission Standards for High-Performance Boats Offered in Exchange for Evaporative Controls (page 31)
- CARB Holds First Workshop on Phase II of Shore Power Regulation – Staff Expects to Add Vehicle Carriers, Cargo Ships, Tankers, and Tugboats to the Rule by December 2008 (page 36)
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## April 2008

- NHTSA Releases NPRM for 2011–2015 Model Year CAFE Standards – Proposed Standards Would Set Fleet MPG at Levels Similar to CARB’s AB 1493 Standards, and NHTSA Claims CARB’s AB 1493 Standards are Pre-Empted by Federal Law (page 2)
- CARB Symposium Addresses More Stringent Control of Greenhouse Gas Emissions from Passenger Cars – Some Vehicle Manufacturers Appear to Agree with Environmental Groups and Academics Regarding Need for and Feasibility of Huge Reductions in Greenhouse Gas Emissions Through the Use of Emissions Standards, Feebates, and Taxes (page 5)
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- CARB Holds Low Carbon Fuel Standard Working Group Meeting to Discuss Proposed Regulation Concept Outline (page 22)
- University of California Researcher Mark Delucchi Says Low-Carbon Fuel Standard May Be a “Really Bad Idea” – Delucchi’s Work Indicates that Virtually All Previous Analyses of Biofuels Have Ignored Significant Impacts on Greenhouse Gas Emissions (page 30)
- CARB Holds Workgroup Meetings on Design of AB 32 Cap and Trade Program (page 31)
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- CARB Holds Fourth Workshop on Ocean-Going Ship Main Engines Regulation (page 42)
- CARB Proposes Changes to Small Off-Road Engine (SORE) and Large Spark-Ignition (LSI) Engine Regs – Proposal Includes More Stringent Standards for LSI Engines Displacing One Liter or Less and Changes to Current Emission Credit Program (page 48)
- CARB Staff Holds Third Workshop on Proposed Regulation and Procedures for Portable Outboard Marine Fuel Tanks (page 52)
- CARB Issues 2009 Parts Cost Limit and PZEV Warranty Information (page 55)
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## March 2008

- CARB Hears Update on AB 32 Transportation Sector Implementation – Staff Analysis Claims to Contradict EPA’s Claim That New Federal Fuel Economy Standards Are More Effective than CARB’s Greenhouse Gas Standards (page 2)
- CARB Adopts Policy Statement on Voluntary Early Actions to Reduce Greenhouse Gas Emissions – Stakeholders Say Statement Offers Little Assurance or Encouragement (page 6)
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- CARB Approves Ozone Early Progress Plans for Five Downwind Transport Areas – Plans Set Conformity Emission Budgets Needed for Transportation Planning (page 15)
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- CARB Holds First Workshop on Regulation That Will Likely Ban Small HFC-134a Cans Used by Do-It-Yourselfers to Recharge Car A/C Systems (page 21)
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## February 2008

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- CARB Proposes Another Round of Changes to the ZEV Regulations (page 7)
- CARB Staff Presents Mobile Source “Action Plan” for 2008 – Staff Efforts to be Focused on Climate Change and Goods Movement Emissions (page 15)
- CARB Adopts Amendments to Verification Procedures for Retrofit Diesel Emission Control Devices – Changes Focus on Allowing Wider Use of Verified Device and Promoting Devices That Reduce NOx Emissions (page 17)
- CARB Approves \$500,000 for New Innovative Clean Air Technologies (ICAT) Grants (page 22)
- CARB Approves Five Research Proposals, Including One Related to Greenhouse Gases (page 24)
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- CARB Staff Holds Workshop on Proposed Guidelines and Targets for Proposition 1B Goods Movement Emission Reduction Program Funds (page 34)
- CARB Holds Workshop on GHG Scoping Plan – Staff Appears to Be Seriously Considering Market-Based Approaches to Achieving GHG Reductions in Addition to Command and Control Approaches (page 37)
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- CARB Issues Guidelines for \$1.8 Million Alternative Fuel Vehicle Incentive Program That Will Provide up to \$5,000 Per Vehicle (page 43)
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## January 2008

- U.S. EPA Rejects CARB's AB 1493 Waiver Request – Action Leaves CARB's Greenhouse Gas Regulations Unenforceable and Prompts California to Petition the Ninth Circuit of the U.S. Court of Appeals for a Review of U.S. EPA's Decision (page 2)
- New CARB Program Seeks Children to Proselytize on Global Warming (page 3)
- CARB Unanimously Adopts Greenhouse Gas Inventory Calculations for 1990 Baseline – 2020 GHG Reduction Target Set at 173 Million Metric Tons of CO<sub>2</sub> Equivalent (page 6)
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- Board Adopts Heavy-Duty Diesel In-Use Measurement Allowances (page 23)
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## December 2007

- California District Court Upholds Adoption of CARB's Greenhouse Gas Regulations – Second Judge Rules that CARB Regs Will Not Be Preempted if EPA Grants Waiver (page 2)
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- CARB Staff Holds Workshop on Warranty Reporting and Recall Regulations – Proposes Recall Even If Vehicles Pass Emissions Testing (page 12)
- CARB Holds Workshop on Diesel PM Control Measure for On-Road Private Fleets – Trucking Industry Vows to Seek Alternative Controls Through Legislature (page 18)
- CARB Holds Workshop to Discuss Evaporative Emission Control Requirements for Gasoline Marine Engines – CARB Urges U.S. EPA to Adopt Requirements That Would Satisfy California’s Needs (page 22)
- CARB Proposes Modifications to the Zero Emission Bus Regulations – Stakeholders Adamant That More Testing Is Needed Before CARB Requires Advanced Demonstration Programs to Begin (page 25)
- CARB Approves Emission Reduction Plan for Ports and Goods Movement Over Objections from Some Industry Sectors (page 28)
- In Response to Governor’s Executive Order, California Climate Action Team Issues First Report Regarding the Impacts of Climate Change on California and Recommendations on How to Reduce California CO<sub>2</sub> Emissions (page 39)
- Based on OEHHA Review of NO<sub>2</sub> Health Effects, CARB Staff Proposes More Stringent One-Hour NO<sub>2</sub> Standard, and a New State Annual Average Standard More Stringent Than the Federal NAAQS (page 41)
- I/M Review Committee Hears from the Alliance of Automobile Manufacturers and the Equipment and Tool Institute on OBD II Testing Issues (page 43)
- Legislative Update (page 47)
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## April 2006

- CARB Hears Update on Governor's Greenhouse Gas Reduction Targets – Few Specifics Are Discussed Although Staff Indicates That Additional Measures, Including More Stringent GHG Standards for New 2017 and Later Model Year Vehicles, Will Be Brought to the Board for Consideration (page 2)
- CARB Adopts Amendments to Verification Procedures for Diesel PM Control Devices – Allowable NO<sub>2</sub>/NO<sub>x</sub> Ratio Increased with Unanimous Support from Stakeholders (page 5)
- CARB Holds Workshop to Discuss Revisions to Vehicle Scrappage Regulations (page 7)
- CARB Holds Workshop on Proposed Changes to OHRV Regulations – Agency Proposes Partial Alignment with U.S. EPA and Sets Stage for More Stringent Future Evap Standards (page 10)
- Draft Guidance Document for Multimedia Fuel Evaluation Protocol is Released – Viability of This Potentially Cumbersome Process is Questioned by Stakeholders (page 14)
- CARB Announces Workshop to Consider Defect Reporting Amendments – Proposes to Double Threshold (page 18)
- CARB Sends Report to Legislature on Potential Air Quality Impacts Associated with Mexican Truck Operation in the U.S. Under NAFTA (page 20)
- CARB Issues 2007 Parts Cost Limit and PZEV Warranty Information (page 22)
- I/M Review Committee Meets to Discuss Internal Study of Smog Check Inspection Data (page 23)
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## **March 2006**

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- CARB Proposes Revised LSI Regulations – Concessions Made to Agricultural Interests May Be Enough to Blunt Opposition and Pave the Way for Board Approval (page 8)
- CARB Approves Revisions to Lower-Emission School Bus Program Guidelines – Existing Policy to Use Two-Thirds of Funding for Alternative Fuel Buses Is Temporarily Suspended, Use of Cleaire’s Uncatalyzed Diesel Particulate Filter Is Prioritized for Retrofits (page 12)
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## February 2006

- Unexpected Retirement of CalEPA Secretary Announced – No Successor Named (page 2)
- CARB Votes to Leave Railroad MOU in Effect (page 3)
- CARB Adopts Amendments to the Agency’s Heavy-Duty Smoke Regulations Intended to Ban Mexican-Based Trucks with Engines Certified to Standards Less Stringent than U.S. Federal Standards from Operating in California (page 8)
- CARB Staff Holds Meeting to Discuss Enhanced Vapor Recovery Certification Procedures for E85 Fueling Equipment (page 11)
- CARB Staff Holds Workshop to Discuss New Electronic Certification System (page 14)
- CARB Holds Third Workshop Regarding Air Toxic Control Measure for Diesel Off-Road Equipment – Staff Rolls Out Detailed “Regulatory Concept” (page 17)
- CARB Staff Holds Another Workshop on the Need for Changes to the Zero Emission Bus Regulations, Given the High Cost and Slow Development of Required Technologies (page 19)
- I/M Review Committee Hears Presentations Addressing More Stringent Cutpoints, Program Evaluation Plans, OBD Testing, etc. – Continues to Complain About Lack of Cooperation from BAR (page 21)
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## January 2006

- Governor Appoints Robert Sawyer As Next Chairman of the California Air Resources Board (page 2)
- CARB Adopts Air Toxics Control Measure (ATCM) for Heavy-Duty Diesel Vehicles in Public Agency and Private Utility Fleets (page 3)
- CARB Adopts ATCM for Cargo Handling Equipment at Ports and Intermodal Rail Yards – South Coast Air Quality Management District Questions CARB’s Authority to Regulate Some Equipment (page 9)
- CARB Adopts ATCM for Auxiliary Diesel Engines on Ocean-Going Vessels – Staff Discounts Stakeholders’ Safety Concerns (page 14)
- CARB Staff Updates Board on Goods Movement Action Plan – Draft Emission Reduction Plan for Ports and International Goods Movement Released (page 19)
- CARB Approves \$2.6 Million for Eight New Research Proposals and \$820,000 for Four New Innovative Clean Air Technologies (ICAT) Grants (page 25)
- CARB Issues Mail-Out on Use of Biodiesel Under SB 975, and the Effect on Warranty Provisions under CARB’s In-Use Fleet Rule (page 28)
- CARB Issues Draft Criteria for Siting and Location of Demonstration Hydrogen Fueling Stations (page 29)
- San Joaquin Valley Air Quality Management District Adopts Rule That Will Require Developers to Pay Air Pollution Mitigation Fees (page 30)
- Rulemaking Calendar (page 34)

## December 2005

- Vehicle Emissions Control Pioneer Ralph C. Stahman Dies (page 1)
- CARB Holds Workshop on Latest Proposal to Modify and Expand OBD II Requirements – Revisions Include Expanded Monitoring for Diesels and Changes to Warranty Requirements (page 2)
- CARB Holds Meetings on RFG3 Predictive Model and Other Fuels Activities – Staff Concedes that Permeation Emissions May Be Triple Staff’s Original Estimates (page 12)
- CARB Adopts Revised Moyer Program Guidelines – Increased Funding Allows Inclusion of Projects Focused on Reductions of ROG and PM<sub>10</sub> As Well As NO<sub>x</sub> (page 17)
- CARB Adopts Amendments to Marine Inboard and Sterndrive Spark-Ignition Boat Regulations – Emissions-Neutral Amendments Allow Extended Phase-in 2007 Model Year HC+NO<sub>x</sub> Standard (page 22)
- I/M Review Committee Hears Presentations Regarding Particulate Emissions from Gasoline vs. Diesel Engines and Problems with Cost-Effectiveness of OBD-Based I/M Failures (page 25)
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## November 2005

- CARB Adopts Heavy-Duty Vehicle Idling Regulations That Take Effect in 2008, Ignoring Objections from Engine Manufacturers Association (page 2)
- CARB Amends Exhaust Emission Standards for 2007-2009 Model Year Heavy-Duty Urban Bus Engines to Align Bus NOx Standard with Truck Standard (page 7)
- CARB Staff Lambasted by South Coast Air Quality Management District, Legislators, City Officials, and Others in Front of Board for Negotiating Railroad Memorandum of Understanding In Secret, Among Other Crimes – Board Leaves MOU in Place for Now and Directs Staff to Obtain “Clarification” of Certain MOU Provisions, Work to Improve Stakeholder Support, and Report Back to the Board in January (page 13)
- CARB Staff Holds Another Workshop on Hydrogen Highway Progress (page 16)
- CARB Holds Vapor Recovery Workshop – Successful Certification of Phase II and ISD Enhanced Vapor Recovery Systems Prompts Staff to Propose Changes to Existing Certification Requirements (page 19)
- CARB Holds a Workshop to Discuss Modifications to the Zero Emission Bus Regulations – Staff Seeks Further Relaxation of Requirements for ZEB Demonstrations (page 22)
- Cahill Presents Opinions Regarding Impacts of Fine Particles to I/M Review Committee – Concludes Light-Duty Passenger Vehicles Are Most Significant Vehicular Source (page 24)
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## October 2005

- CEC Hosts Second Annual Climate Change Conference – Greenhouse Gas Controls Advocated by Many Speakers, None of Whom Provide a Quantitative Estimate of Any Benefit from Such Controls (page 2)
- CARB Holds Hearing on South Coast Fleet Rules, But Takes No Action on the School Bus and Waste Collection Rules (page 18)
- CARB Adopts Amendments to Portable Fuel Container Regulations (page 27)
- CARB Staff Releases Final Proposal for Heavy-Duty Engine OBD Regulations (page 31)
- Board’s Consideration of Large Spark-Ignition (LSI) Engine Requirements Postponed Due to Conflicts of Interest by Board Members While Staff Works to Develop a Revised Proposal (page 31)
- Phase I Portion (“Foundations”) of the State’s Goods Movement and Ports Action Plan is Finalized with Minimal Changes (page 32)
- Cal/EPA Staff Conducts Stakeholders Meeting on Multimedia Evaluations of Motor Vehicle Fuels and Fuel Additives (page 33)
- CARB Releases Revised Moyer Program Guidelines – Increased Funding Allows for Expansion of Program to Include ROG and PM<sub>10</sub> Projects (page 36)
- Legislative Update – Governor Vetoes Proposed Increase in Membership of California Air Resources Board (page 42)
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## September 2005

- Senate Rejects Cindy Tuck as Chair of the California Air Resources Board (page 1)
- CARB Adopts Emergency Change to Gasoline RVP Standards to Boost Gasoline Supply Following Disruptions Caused by Hurricane Katrina on the Gulf Coast (page 2)
- CARB Holds Meetings on RFG3 Predictive Model, General Fuels Activities, and CNG Specifications (page 5)
- CARB Holds Public Consultation Meeting on Statewide Rail Yard Memorandum of Understanding (page 10)
- CARB Conducts Series of Maritime Workshops – Three Separate Regulations Are Scheduled for Board Consideration at Upcoming Hearings (page 18)
- I/M Review Committee Reviews Preconditioning and Enforcement Issues; Two New Members Appointed (page 30)
- Legislative Update (page 34)
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## August 2005

- Dairy Cows Found to Emit More Hydrocarbons than Passenger Cars in California's San Joaquin Valley (page 2)
- CARB Adopts Heavy-Duty Engine OBD Regulations as Proposed by Staff (page 4)
- CARB Approves 2005-2006 Research Proposal Plan for 27 Recommended Studies – Many Have Potential for Ozone and PM<sub>2.5</sub> Inventory Development (page 10)
- CARB Staff to Present State Regulations Implementing “South Coast Clean Fuel Fleet Rules” to Board – Contrary to the Claims of the South Coast Air Quality Management District, CARB's Analysis Shows the Rules Will Have Little Impact on Emissions and Are Not Cost-Effective (page 13)
- CARB Holds Second Workshop on Development of Air Toxic Control Measure for Diesel Off-Road Equipment (page 16)
- CEC and CARB Hold Workshop on Expanding Use of Alternative Fuels in California (page 22)
- Legislator Proposes Donation and Trade of Vehicles to Replace High-Emitting Vehicles Detected in Smog Check Program (page 26)
- CARB Staff Issues MAC 2005-03 Setting Revised Test Procedure For Certification of 2008 and Later Gasoline-Fueled Zero-Evaporative Vehicles (page 27)
- 2004 Data Generally Show Continued Improvement in California Air Quality (page 29)
- Legislative Update (page 55)
- Rulemaking Calendar (page 67)

## July 2005

- Governor Appoints Cindy Tuck, Attorney for the California Council on Environmental and Economic Balance, as Next CARB Chair (page 2)
- CARB Staff Releases Final Proposal for Heavy-Duty Engine OBD Regulations (page 4)
- CARB Board Hears Staff's Proposed Regulations for Large Spark-Ignited (LSI) Engines, But Delays Decision in Order to Allow Agricultural Industry Time to Seek Governmental Subsidies to Pay for Compliance (page 6)
- CARB Staff Proposes New Requirements for Aftermarket Catalyst Exemption, Expects to Present Proposal to Board in September (page 10)
- CARB Staff Holds Second Meeting of Biodiesel Workgroup, Presents Update to Board - B20 and Lower Blends Appear to Gain Favor with CARB (page 14)
- CARB Issues Draft Airshed Modeling Protocol for Evaluating Ozone Impacts from Using Ethanol in Gasoline – Modeling Will Characterize VOC Permeation Emissions Relative to CO Emissions (page 16)
- CARB Holds Aboveground Storage Tank Vapor Recovery Workshop – Revised Tank Inventory Complete, Pilot Study in Progress (page 17)
- Legislative Update (page 20)
- Rulemaking Calendar (page 36)

## June 2005

- CARB Staff Issues Second 15-Day Notice on Greenhouse Gas Regulation as Litigation Continues (page 2)
- Governor Schwarzenegger Issues Executive Order Establishing Fanciful Greenhouse Gas Emissions Reductions Targets for California (page 3)
- CARB Board Gets Informational Update on Hydrogen Highway (page 5)
- CARB Holds Workshop on Proposed Regulations that Could Prohibit the Operation of Some Mexican Trucks in California; However, Value of Label Inspection Program is Questionable at Best (page 6)
- CARB Staff Presents Board with Update on the Possible Need for Modification of Agency's Specifications for CNG and LNG Used as Motor Vehicle Fuel (page 9)
- CARB Releases Proposed Regulations for Large Spark-Ignited Engines that Impose New Standards for Both Engines and Equipment Fleets (page 11)
- CARB Holds Workshops on Strategies to Reduce Emissions from Rail Yards, Locomotives, and Maritime Ports – Draft Regulatory Concepts Presented for Cargo Handling Equipment, Further Evaluation of Industry Profile and Fuel Availability Needed for Marine-Related ATCM (page 17)
- CARB Issues 2006 Parts Cost Limit and PZEV Warranty Information (page 27)
- Smog Check Program Update (page 28)
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## May 2005

- Board Adopts Proposed 8-Hour State Ozone Standard Following Final Workshop – Compliance with New Standard Unlikely for Decades, If Ever (page 2)
- CARB Holds Fuels Workshop – 2005 Agenda Limited to Predictive Model Update, More Refined Estimate of Ethanol Effects on Evaporative Emissions, and Possible Mitigation Strategies (page 6)
- Engine Manufacturers Lose First Round In Court Action over CARB’s Heavy-Duty Diesel Engine “NOx Reflash” Rule (page 9)
- CARB Holds Workshops to Adopt State Regulations Implementing the “South Coast Clean Fuel Fleet Rules” at the Urging of the SCAQMD – At Best, However, Only Negligible Reductions in Emissions Will Result (page 11)
- CARB Holds Workshop on Updates to Carl Moyer Program – Sweeping Changes in Eligibility Requirements are Proposed (page 19)
- Legislative Update (page 25)
- Rulemaking Calendar (page 48)

## April 2005

- CARB Holds Fuels Workshop – 2005 Plans Include Predictive Model Updates, and More Refined Estimate of Ethanol Effects on Evaporative Emissions (page 2)
- “Mobile Air Conditioning Summit” Hosted by CARB – Complicated, Potentially Inconsistent, and Uncertain Requirements in Europe and the U.S. Are Already Contributing to Higher Refrigerant Prices (page 7)
- CARB Holds Workshop on Off-Road Large Spark-Ignition Engine Rulemaking – Questions Remain Regarding the Viability of In-Use, Fleet-Average Emission Standards (page 19)
- CARB Holds Workshop on Proposed Changes to the Heavy-Duty Vehicle Idling Regulations (page 29)
- Draft Goods Movement and Ports Action Plan Calls for Extensive Emissions Reduction Measures (page 32)
- CARB Hears Health Update – U.S. and European Studies Show Connection Between Ozone Exposure and Short-Term Mortality (page 38)
- CARB Staff Proposes New Eight-Hour State Ambient Ozone Standard of 0.070 ppm (page 40)
- CARB Holds Workshop on Updates to the California Mobile Source Emissions Inventory (page 43)
- CARB Approves Five New Research Proposals – PM<sub>2.5</sub> and ROG Studies Will Be Beneficial to SIP Development Process (page 63)
- Legislative Update (page 65)
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## March 2005

- CARB Holds Workshop on On-Board Diagnostics for Heavy-Duty Engines – Staff Proposes Elaborate Requirements Without Demonstrating Feasibility of Manufacturers to Comply (page 2)
- CARB Holds Final Workshop on Amendments to Portable Fuel Container Rule – Problematic Automatic Shut-Off Spouts No Longer Required for Smaller Containers (page 13)
- CARB Holds Another Workshop on Methods to Reduce Emissions from Gasoline Tank Trucks – Staff Making Little Progress (page 17)
- CARB Hears Update on Strategies to Reduce Emissions from Rail Yards, Locomotives, and Maritime Ports – CARB’s Efforts Will Be Hampered by the Agency’s Limited Authority (page 20)
- CARB Adopts Amendments to Fleet Rule for Transit Agencies – Cost Concerns Expressed by Transit Operators Fall on Deaf Ears (page 25)
- CARB To Hold Workshop On NO<sub>2</sub> Emission Limit for Retrofit PM Traps – Staff Proposal Would Modify Limit and Test Procedures (page 30)
- Legislative Update – Newly Introduced Bill, AB 1221, Would Increase Membership of California Air Resources Board (page 32)
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## February 2005

- Board Member Pineda Conflict-of-Interest Issue Now a Major Concern (page 2)
- CARB Punts on Waiver Request for SCAMQD Fleet Rules – Agency Plans to Propose the Adoption of Some But Not All of the SCAQMD Fleet Rules as State Regulations in July (page 4)
- CARB Presents Action Plan for 2005 (page 5)
- CARB Staff Bypasses Rulemaking Requirements To Issue Manufacturers Advisory Correspondence (MAC) Setting Voluntary “Interim” Low Emission Standards For 2005–2006 Model Year Off-Road Large Spark-Ignition Engines (page 8)
- State Agencies Hold Public Meeting to Discuss Ways to Reduce Emissions Associated with Ports and Goods Movement – Few Solutions are Identified (page 10)
- Staff Presents Carl Moyer Program Update and Board Approves Staff’s Recommended Revisions to Program Guidelines (page 13)
- CARB Issues Mailout #MSC 05-02 to Clarify Waste Hauler Retrofit Requirements (page 16)
- CEC Holds Third Quarterly California Climate Change Advisory Committee Meeting – Initial Studies Find Cost-Effective Greenhouse Gas Reductions May Be Available from Cement, Petroleum, and Other Industrial Manufacturing Processes (page 17)
- CARB Staff Conducts Workshop to Discuss Certification to the Agency’s New Evaporative and Exhaust Standards for Small Off-Road Engines (page 20)
- CARB Adopts Staff’s Proposed Changes in State Attainment Designation for Five Areas – Los Angeles Now in “Attainment” Status for Carbon Monoxide (page 22)
- Legislative Update – 2005 Legislative Session Opens with Proposed Resolution Requesting Federal Action to Double Corporate Average Fuel Economy Standards (page 23)
- Rulemaking Calendar (page 24)

## January 2005

- CARB Holds Northern California Kickoff Meetings to Discuss Development of 8-Hour Ozone and PM<sub>2.5</sub> SIPs (page 2)
- CARB Hears Progress Report on Voluntary Heavy-Duty Diesel Chip Reflash Program, Votes to Move Forward With Regulation Adopted in March 2004 (page 3)
- CARB Adopts Amendments to Emission Regulations for Off-Road Diesel-Powered Engines and Equipment – Proposed Labeling Program for Remanufactured Engines Becomes Hot Issue at Hearing (page 9)
- CARB Holds First Workshop on Development of Air Toxic Control Measure for Diesel Off-Road Equipment (page 14)
- CARB Requests Comments on Revised Draft Control Measure for On-Road Heavy-Duty Diesel Vehicles Operated by Public Agencies and Private Utilities (page 17)
- CARB Holds Workshops to Discuss Revisions to Carl Moyer Program (page 19)
- I/M Review Committee Issues Draft Review Report on the Smog Check Program – Report Largely Supports Previous CARB/BAR Recommendations (page 21)
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## December 2004

- Legal Challenge to CARB AB 1493 Greenhouse Gas Regulations Filed (page 2)
- Governor Moves Alan Lloyd Up to CalEPA Secretary; No News Yet on His Replacement as CARB Chair (page 3)
- Hydrogen Advisory Panel Holds Public Meeting, Confirms Issuance of “Blueprint” for Hydrogen Highway and Economy by January 1, 2005 (page 4)
- CARB Adopts Minor Amendments to RFG Specifications; Staff Reports that Ethanol Increases Vehicle Permeation Emissions by 50 Tons per Day (page 6)
- CARB Holds Third Panel Discussion on CaRFG Issues (page 12)
- CARB Takes Action on Diesel Fuel Issues: Extends Motor Vehicle Diesel Fuel Standards to Harbor Craft and Intrastate Locomotives; In Separate Hearing, Delays Implementation of Diesel Fuel Lubricity Standard (page 14)
- CARB Holds Workshop to Discuss “Low-Carbon Fuels” as a Means to Reduce Greenhouse Gas Emissions from Mobile Sources (page 20)
- CARB Extends ORVR Compatibility Deadline for Gasoline Station Vapor Recovery Systems by One Year (page 24)
- CARB Holds Workshops on Development of Marine-Related ATCMs – Industry Surveys and Regulatory Concepts for Cargo Handling Equipment, Ship Auxiliary Engines, and Harbor Craft are Discussed (page 26)
- CARB Holds First Aboveground Storage Tank Vapor Recovery Workshop in Eight Months – Current Draft Regulation to be Completely Revised (page 29)
- I/M Review Committee Plods Toward Completion of Long Overdue Report to the Legislature (page 32)
- Rulemaking Calendar (page 34)

## November 2004

- CARB Staff Issues 15-Day Notice for Public Comment on Final Revisions to Greenhouse Gas Regulations (page 2)
- CARB Approves SIP for San Joaquin Valley One-Hour Ozone Attainment (page 4)
- Board Hears School Bus Idling Update (page 8)
- Board Hears Update on Voluntary Chip Reflash Program – Staff Disappointed by Slow Progress (page 10)
- CARB Staff Provides Board With Update on Emission Control Technologies for Spark-Ignition Inboard Pleasure Craft (page 13)
- Hydrogen Highway Blueprint and Rollout Strategy Topic Team Holds Public Meeting – No Program Cost, Benefit, or Funding Information is Provided (page 16)
- CARB Holds Workshops on Proposed Control Measure for On-Road Heavy-Duty Diesel Vehicles Operated by Public Agencies and Private Utilities; Releases Draft Regulations (page 22)
- CARB Holds Workshops on Fleet Rule for Transit Agencies (page 30)
- CARB Holds Fourth Workshop on Modifications to Portable Fuel Container Regulations – Staff Considering a Switch to Performance-Based Standards, and Removal of Fill Height, Flow Rate, and Automatic Shut-Off Requirements (page 33)
- CARB Holds Workshop on Cargo Tank Emissions Regulations (page 36)
- CARB Holds Workshop on Potential Updates to the California Emissions Inventory – Advertised as the First Step in SIP Development for Federal Eight-Hour Ozone and PM<sub>2.5</sub> Standards (page 40)
- I/M Review Committee Meets (page 46)
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## October 2004

- CARB Adopts Greenhouse Gas Regulations, Ignoring Testimony from the Auto Industry that Fuel Savings Will Not Offset Higher New Vehicle Costs and that Fuel Economy Regulations Should Be Set at the National Level (page 2)
- CARB Holds Second Panel Discussion on CaRFG Regulations – Permeation Study and National Gasoline Specification Discussed (page 14)
- CARB Holds Fuels Workshop and Releases Proposed Amendments to CaRFG and Diesel Fuel Regulations (page 19)
- CARB Solicits Comments on Section 209(b) Waiver Request for South Coast AQMD “Clean Fuel Fleet” Rules (page 26)
- CARB Staff Implements Third Enhanced Vapor Recovery (EVR) Phase II System Extension – No Certified System Available to Meet October 1, 2004 Deadline (page 28)
- CARB Holds Workshop on Proposed Cargo Handling ATCM (page 29)
- I/M Review Committee Meets (page 32)
- Legislative Update (page 37)
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## September 2004

- Governor Appoints New Members to California Air Resources Board (page 2)
- CARB Issues Staff Report for AB 1493 Climate Change Gas Regulations – Staff Acknowledges Report Contains Significant Errors (page 4)
- CARB Holds Workshop on Off-Road Large Spark-Ignition (LSI) Engine Rulemaking – January 2005 Board Hearing Date Likely to Be Delayed Amid Outcry from User Groups and Manufacturers (page 7)
- CARB Staff Announces Intent To Adopt EPA “Aftertreatment” Standards for Off-Road Compression Ignition Engines (page 18)
- CARB Holds Workgroup Meeting on Draft Emission Estimation Methodology for Commercial Harbor Craft (page 19)
- CARB Holds Workshop on Proposal to Extend ORVR Compatibility Deadline by One Year – Staff Says Phase II EVR Deadline Will Be Extended by Several Months (page 23)
- CARB Approves Update to Vapor Recovery Equipment Defects List (page 26)
- CARB Holds Contentious Fourth Workshop on Proposed Eight-Hour State Ozone Standard (page 27)
- Legislative Update (page 33)
- Rulemaking Calendar (page 48)

## August 2004

- Board Hears Presentation Regarding Possible Climate Change Impacts as Hearing on Motor Vehicle Greenhouse Gas (GHG) Standards Draws Near – Presentations Suggest that Reductions in Emissions of GHG are Necessary to Prevent Increases in Deaths Due to Causes Including Disease, Flooding, Malnutrition, and Heat Waves (page 2)
- CARB Adopts Heavy-Duty Diesel Idling ATCM – Provision Restricting Extended Idle for Sleeper Cabs Is Removed (page 4)
- CARB Adopts Amendments to Unihose Gasoline Dispenser Requirements for Gasoline Dispensing Facilities Vapor Recovery Program – Will Allow Use of Current Dispensers Until They Are “Replaced or Substantially Modified.” ORVR Compatibility Deadline Extension Will Be Proposed at November 2004 Hearing (page 10)
- CARB Holds Panel Discussion on Possible Revisions to CaRFG Regulations – Competing Viewpoints Expressed (page 15)
- CARB Holds Fourth Workshop on Regulatory and Non-Regulatory Fuels Activities – Staff’s Proposals for November Board Hearing Will Be Limited to CARB Diesel for Locomotives and Harbor Craft and Changes to Blending Protocols (page 20)
- CARB Holds First Workshops on ATCM for Diesel-Fueled Cargo Handling Equipment at Intermodal Facilities – SCAQMD Agrees to Halt Further Pursuit of Its Conflicting Proposed Rule 1198 (page 24)
- CARB Staff Proposes State Eight-Hour Ozone Standard of 0.070 ppm (page 27)
- CARB Adopts Revisions to the CO SIP and Maintenance Plan – Fulfills CAA Requirements, Demonstrates Attainment of Federal CO Standard Through 2018 for Ten Key Areas (page 35)
- Review of Latest Data Shows Air Quality Improved in 2003, Except for Ozone (page 37)
- I/M Review Committee Meets Again – Accomplishes Little (page 61)
- Latest Smog Check Data Analysis Shows Higher Failure Rates for Late Model, OBD-Equipped Cars and Trucks (page 66)
- Legislative Update (page 85)
- Rulemaking Calendar (page 98)



## July 2004

- CARB Issues Staff Report and Holds Workshop on Regulations to Reduce Emissions of “Greenhouse Gases” from Motor Vehicles (page 2 and page 18)
- Floods, Fires, and Water Shortages Forecasted at First Annual California Energy Commission Climate Change Conference – CARB Chairman Lloyd Announces Proposal to Reduce Greenhouse Gas Emissions from Motor Vehicles (page 23)
- Matthew McKinnon and William Burke to Resign From Air Resources Board (page 35)
- CARB Holds Meeting to Discuss Regulatory and Nonregulatory Fuels Activities for 2004 – Staff Announces Plan to Require California Diesel to be Used in Locomotive and Marine Engines by 2007 (page 35)
- CARB Adopts Modifications to Urban Bus Regulations; Bowing to Reality, It Sets Less Stringent Diesel HEB NOx Standard and Eases Requirements for ZEB Demonstrations (page 44)
- CARB, EPA Sign MOA on Diesel Retrofit Verification (page 50)
- CARB Holds Workshop on Proposed Changes to Unihose Gasoline Dispenser Requirements for Gasoline Dispensing Facilities Vapor Recovery Program – Staff Proposal Will Allow Use of Current Dispensers Until They Are “Replaced or Substantially Modified,” But Will Not Address Stakeholders’ Request for ORVR Compatibility Deadline Extension (page 51)
- Governor Schwarzenegger Proposes Smog Reduction Strategy That Exempts Additional Vehicles from Smog Check, Ignoring CARB’s Recommendation to the Contrary (page 56)
- Hybrid-Electric Vehicles Exempted from Smog Check (page 59)
- I/M Review Committee Discusses Governor Schwarzenegger’s Recently Proposed Smog Reduction Strategy (page 61)
- Legislative Update (page 68)
- Rulemaking Calendar (page 89)

## June 2004

- CARB Adopts Phase I OBD Requirements for 2007 and Later Heavy-Duty Engines (page 2)
- Latest Petroleum Replacement Fantasy Discussed at May Board Meeting – Board Hears Update on the Governor’s Plan for a Hydrogen Highway and a Hydrogen-Based Economy (page 6)
- CARB Agrees to Limited Changes to the Service Information Rule for Heavy-Duty Vehicles – Delays HDV Requirement for Reprogramming Tool Availability to 2010, But Sticks with Decision Not to Require OEMs to Surrender “Immobilizer” Initialization Information to ECU Remanufacturers (page 10)
- CARB Holds Workshop on Proposed Regulations to Reduce Diesel PM from In-Use, On-Road Fleets Operated by Public Agencies – County Officials Testify That Cost of Retrofits Would Cripple Ability of Rural Governments to Maintain Roads (page 14)
- CARB Holds Workshop on Fleet Rule for Transit Agencies – Proposed Modifications Would Apply to All California Transit Agencies (page 22)
- CARB Holds Final Workshop on Heavy-Duty Diesel Idling ATCM – Latest Version Deletes Some Earlier Requirements (page 25)
- CARB Holds Meeting of Cargo Tank Working Group – Current Proposal Calls for Raising Minimum Allowable Tank Venting Pressure (page 28)
- CARB Announces Resolution of Warranty Requirement Dispute with Johnson Matthey – PM Traps Are Reinstated as Verified Diesel Emission Control Strategy (page 31)
- CARB Holds Workshop on Implementing PM Reduction Measures Pursuant to SB 656 – Effort Appears to be Devoid of Air Quality Benefit (page 33)
- CARB Holds Workshop on Standards for “Large Spark-Ignition” (LSI) Engines and Retrofit Verification Protocols – Industry Expresses Frustration With Regulatory Process (page 37)
- CARB Holds Third Workshop on Modifications to Portable Fuel Container Regulations – Permeation Standard to be Lowered, Draft “Customer Acceptance Evaluation” Methodology Released (page 49)
- CARB Issues 2005 Parts Cost Limit and PZEV Warranty Information (page 53)
- I/M Review Committee Hears Presentation from CARB on Smog Check Evaluation Report to the Legislature (page 54)
- Legislative Update (page 63)

## May 2004

- CARB Sets Stage for Greenhouse Gas Regulations at Workshop on Staff's Draft Technology and Cost Assessment (page 2)
- With Great Fanfare, Governor Schwarzenegger Announces Hydrogen Highway – Says Hydrogen-Fueled Vehicles that Will Clean the Air Are Needed Because of “Hundreds of Billions of Dollars Per Year” in Air Pollution Health Damage (page 15)
- CARB Releases Staff Proposal on First Phase of On-Board Diagnostics System (OBD) Requirements for 2007 and Later Vehicles – Second Phase (for 2010 and Later Vehicles) Will Be Promulgated Next Year (page 17)
- CARB Holds Second Workshop Fuels-Related Activities – Presents Draft Regulations on RFG3 Implementation Issues and Again Raises Possibility of an RFG4 Specification (page 21)
- CARB Holds First Meeting of Biodiesel Workgroup; Staff is Relying on Advocacy Groups to Write Specifications and Proposing Informal Verification of Emissions Effects (page 27)
- CARB Hears Staff Report on Feasibility of Electrification of Small Offroad Engines (SOREs) – Staff Does Not Recommend Forced Electrification Program, but Plans to Continue Monitoring Development of Electric Lawnmower Technology (page 32)
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- California Environmental Policy Council Approves Use of Lubrizol's PuriNOx Alternative Diesel Emulsion Fuel, Amendments to California Diesel Fuel Regulation (page 44)
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- CARB Issues Manufacturers Advisory Correspondence Setting Up ZEV Credit Tracking And Reporting System (page 10)
- CARB Holds Fourth Workshop on In-Use HDD Idling Limits – Proposed ATCM Has Support of Trucking Industry (page 12)
- CARB Holds Workshop on Modifications to Urban Bus Regulations – Proposed Changes to Engine Exhaust Emissions Standards, Transit Agency Fleet Rule, and Zero-Emission Bus Demonstration Projects Will Relax or Delay Requirements of Overly Ambitious Regulations (page 18)
- CARB Presents Minor Changes to Program Guidelines at Workshop on Lower-Emission School Bus Program (page 23)
- CARB Unable to Certify Phase II EVR System on Schedule – Effective Date Delayed Six Months, Until October 2004 (page 25)
- CARB Holds Another Workshop on Vapor Recovery Equipment Defects List Update – Approval Likely at Executive Officer's Hearing in Early July (page 26)
- CARB Holds Second Workshop on Modifications to Portable Fuel Container Regulations – Kerosene Cans and Utility Jugs To Be Included in Rule, Customer Satisfaction Criteria Will Likely Be Added to Test Protocol (page 27)
- CARB Holds Opening Workshop on Potential Regulations for Commercial Harbor Craft Regulations (page 31)
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- CARB “Environmental Justice” Workshop on Climate Change Emissions Regulations (page 10)
- CARB Holds Meeting of Cargo Tank Working Group; Industry Representatives Seek Greater Involvement In Regulatory Process (page 16)
- CARB Approves Revised Amendments to the Diesel Emission Control Strategy Verification Procedure – Revised Warranty Provision Now Includes Unlimited Mileage for Long-Haul Trucks and Clarifying “Burden of Proof” Language, But Changes Fail to Bring Johnson-Matthey and Engelhard Back into the California Market (page 18)
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- CARB Unanimously Adopts ATCM for Portable Diesel Engines > 50 hp, Despite Claims from Several Stakeholders that Costs Are Underestimated (page 31)
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- CARB Holds SIP "Summit" Meeting to Present Strategies Approved in October 2003 and to Receive Public Comment; Industry Largely Silent, Environmentalists Urge Greater Control Stringency and the "Hydrogen Highway" (page 3)
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- CARB Hears Staff Proposal on Software Upgrade Regulation (Chip Reflash) – Lawsuits Threatened from All Sides, Trucking Industry Poised to Step Up Voluntary Upgrades (page 5)
- CARB Staff Issues Proposed Regulations for Idling Restrictions on 2007 and Later Model-Year Heavy-Duty Diesel Engines and Then Postpones Board Hearing (page 10)
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- CARB Hears Staff's Proposed Amendments to the Diesel Emission Control Strategy Verification Procedure – Staff Seeks to Delay Requirement for 20% NO<sub>2</sub> to NO<sub>x</sub> Ratio Limit Until 2007, Asks Board to Consider Future Removal of Engine/Vehicle Warranty Coverage (page 18)
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- CARB Holds Workshop on Modifications to Transit Fleet Rule PM Control – Non-Urban Buses to be Included in Regulations and Bus-Only Standards for 2007 Eliminated (page 26)
- Board Hears Staff Proposal for Transport Refrigeration Unit (TRU) Regulation – Regulated Community Questions CARB's Regulatory Authority and Staff's Cost Analysis (page 32)
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- CARB Holds Workshop on Permeation Standards for Gasoline Dispensing Hoses Despite the Lack of Any Testing to Demonstrate the Need for Standards (page 10)
- CARB Holds Workshop on Modifications to Portable Fuel Container Regulations – Kerosene Cans and Utility Jugs To Be Included in Rule (page 12)
- CARB Holds Workshop on Aboveground Gasoline Storage Tanks (page 16)
- CARB Holds Workshop on Vapor Recovery Equipment Defects List Update (page 21)
- CARB Holds Workshop on Proposed Portable Engine Regulations; Agenda Covers Proposed Diesel PM ATCM and Revisions to PERP Regulation (page 22)
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- International Diesel Retrofit Committee Meets Again – Increases in NO<sub>2</sub> with Traps and Warranty Issues Dominate Discussions (page 35)
- CARB Holds Portable Engine Equipment Workgroup Meeting, Revises Proposed ATCM and Portable Equipment Registration Program – All Portable Engines Required to Meet New Engine Certification Standards by 2010 (page 45)
- CARB Holds Final Transport Refrigeration Units (TRUs) Workshop, Releases Staff Report – Staff Plans to Adopt EPA’s Proposed Tier 4 Standards for New Non-Road Engines Plus Retrofit Requirements for In-Use TRUs Used in California (page 47)
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- CARB Staff Holds Workshop on Heavy-Duty OBD – Some Concessions Made to Engine Manufacturers, But CARB Staff Still Silent on Cost and Emissions Issues (page 8)
- CARB Adopts Diesel Control Measure for Heavy-Duty Refuse Collection Vehicles, Despite Strenuous Objection from Refuse Haulers (page 17)
- CARB Adopts a Small Off-Road Engine Rule Over Strenuous Objections from Industry (page 29)
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- CARB Staff Proposes OBD Systems for Heavy-Duty Engines for Discussion at October Workshop – Staff Claims Monitoring the Performance of Diesel NO<sub>x</sub> Catalysts and Particulate Traps is Feasible Despite the Fact that Emission Control Systems Capable of Meeting 2007 Standards Are Not Available (page 9)
- CARB and CEC Host Symposium on Alternative Diesel Fuels – Topics Discussed Include High Cost, Lack of Verified Emission Reductions, and Compatibility Concerns from OEMs (page 14)
- CARB Releases Report on ZEV Credits for Supplementary Activities – Staff Recommends Additional ZEV Credits for Neighborhood Electric Vehicles (NEVs), Discourages Additional Credits for Stationary Fuel Cells and Hydrogen Infrastructure (page 38)
- CARB Staff Holds Clean Car Outreach Stakeholder Meeting; Attendees Hear Reports on Infrastructure, Marketing Plans, and ZEV Regulations (page 42)
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- CARB Adopts Amendment Applying Riding Season Restrictions to Off-Road Motorcycles and ATVs Beginning with the 2003 Model Year (page 16)
- CARB and CEC Adopt Joint Agency Report on Reducing California's Petroleum Dependence (page 19)
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- CARB Staff Releases "15-Day Notice" of Proposed Final Revisions to ZEV Regulations (page 30)
- CARB Holds Another Workshop on Proposed Exhaust and Evaporative Standards for Small Off-Road Engines and Issues Proposed Regulations – Industry Challenges Feasibility of Staff's Evaporative Emissions Proposal and Raises Safety and Cost Issues (page 35)
- CARB Staff Issues Manufacturers Advisory Correspondence Explaining Not-to-Exceed Requirements for 2005–2006 Medium and Heavy-Duty Diesel Engines (page 42)
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- CARB Issues Manufacturers Advisory Correspondence on High-Priced Parts Cost Limit for 2004 Model Year, and Warranty Information Related to Vehicles Receiving Partial Zero-Emission Vehicle Credits (page 47)
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## July 2003

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- CARB Releases Staff Report on Amendments to Diesel Fuel Regulations – Board Will Hear Proposal on July 24, Over the Objections of the California Trucking Industry (page 9)
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- CARB Holds Workshop on Proposal to Reduce Engine Idling – Regulation Would Affect New 2007 Model Year and Later Heavy-Duty Diesel Trucks (page 28)
- CARB Holds Workshop on Regulation Development for Fuel Cargo Tank Emissions – Industry Questions Emissions Estimate (page 34)
- CARB Holds Portable Engine Working Group Meetings – Stakeholders Appear Poised to Support Fleet Average Approach to Diesel PM Control (page 37)
- CARB Holds Another Workshop on Transport Refrigeration Units – Staff Presents Revised Emission Inventory and Latest Air Toxic Control Measure Proposal (page 44)
- I/M Review Committee Meets – Challenges Elements of the California Smog Check Repair Assistance Program (page 50)
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- CARB Votes to Keep Five- and Six-Year-Old Vehicles in the Smog Check Program in Nonattainment Basic Smog Check Areas – Staff’s Analysis Found That Exempting Them Would Prohibit State From Meeting SIP Obligations (page 1)
- CARB and CEC Hold Joint Staff Workshop to Present Report on Reducing California’s Petroleum Dependence – Strategy for Reducing Demand by 15% Below 2003 Level Relies on Alternative Fuels and Fleet-Average 40 mpg Light-Duty Vehicles (page 5)
- CARB Holds Third Workshop on Diesel Fuel Activities – Trucking Association Still Vehemently Opposed to Staff’s Diesel Fuel Amendments (page 14)
- I/M Review Committee Supports Freeze of Rolling 30-Year Exemption to the California Smog Check Program (page 24)
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## May 2003

- CARB Approves Revised ZEV Mandate With Post-2008 Production Requirements – Cost of Pure ZEV Requirements Through 2008: \$250 Million; Benefits: Zero (page 2)
- CARB Hears Reports on In-Use Emissions and Exemptions from Smog Check Program – Staff Finds that Exempting Five- and Six- Year-Old Vehicles From Smog Check Would Keep State From Meeting SIP Commitments in Enhanced Smog Check Areas (page 10)
- CARB Holds Workshop on Draft State and Federal Strategies for the California State Implementation Plan – Staff Tones Down “Electric Forklift Mandate” in Wake of Industry Pressure (page 15)
- CARB Staff Holds Workshop on Diesel Fuel Activities – Hears That Fuel Lubricity Doesn’t Need Regulation (page 28)
- CARB Publishes Advisory on Procedures to Limit Commingling of Ethanol- and Non-Ethanol-Blended Gasolines (page 35)
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## April 2003

- Board Delays Action on Revisions to ZEV Mandate as Board Members Squabble Over Staff Proposal to Allow Compliance Based on 250-Vehicle Fuel Cell Demonstration Program (page 2)
- CARB Hosts International Symposium on Vehicle Technologies to Reduce Greenhouse Gas Emissions – First Step in Preparation for Development of CARB’s CO2 Tailpipe Emission Standard (page 19)
- CARB Releases Report on Emissions Benefits from California Diesel Fuel Program, Says That Original Estimates Continue to be Valid (page 38)
- CARB Holds Seventh Transport Refrigeration Unit Workgroup Meeting, Presents Revised Proposal for Air Toxic Control Measure (page 40)
- I/M Review Committee Meets – CARB Reports on Exempting Five- and Six-Year-Old Vehicles (page 47)
- CARB Releases Staff Report on Exempting Five- and Six-Year-Old Vehicles from Smog Check Program (page 55)
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## March 2003

- CARB Staff Postpones February 27 ZEV Regulatory Hearing to March 27 and Releases “Additional Proposed Modifications” to Its January 10 ZEV Regulatory Proposal – Modifications Include a Compliance Option That Transforms the “ZEV Mandate” in the Near Term to an AT PZEV and PZEV Mandate While Requiring Production of a Limited Number of Hydrogen Fuel Cell Vehicles (page 2)
- CARB Holds First Fuels Workshop of 2003 – Trucking Industry Still Upset Over Lack of Harmonization with Federal Diesel Standards (page 9)
- California Energy Commission Co-Sponsors Ethanol Workshop, Which Consists Mainly of General Information and Biomass to Ethanol Process Sales Pitches (page 15)
- CARB Holds First Workshop on Regulations to Require Software Upgrades for Heavy-Duty Diesel Engines (page 20)
- CARB Holds Another Meeting of the Aboveground Storage Tank Workgroup – Stakeholders Offer No New Comments on Draft Certification Procedure (page 24)
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- New Bills Introduced in 2002–2003 Legislative Session (page 29)
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## **February 2003**

- Catherine Witherspoon Appointed to Serve as New CARB Executive Officer (page 2)
- CARB Staff Releases Proposal to Amend ZEV Regulations – Focus Is On Mandating PZEVs and AT PZEVs in the Near Term and Fuel Cell Vehicles After 2010 (page 2)
- CARB Announces “International Vehicle Technology Symposium” to be Held as Part of the Agency’s Efforts to Develop Greenhouse Gas Regulations (page 13)
- CARB Staff Provides Update to Board on Efforts to Achieve Reductions in NOx Emissions from In-Use Heavy-Duty Diesel Vehicles (page 14)
- Staff Holds Another ZEV Infrastructure/Incentives Workshop – State Now Giving Money Intended to Encourage ZEV Purchases for Vehicles Already Purchased (page 18)
- CARB Holds Workshop on Proposed Changes to Ozone Transport Regulations – Proposed Amendments Will Not Address Mobile Source Emissions (page 20)
- I/M Review Committee Meets – Identifies Tasks and Issues for Future Attention (page 25)
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## **January 2003**

- CARB Executive Officer Mike Kenny to Leave Agency (page 2)
- Air Improvement Resource Submits ZEV Regulation Alternative to CARB (page 2)
- CARB Adopts Three-Part Rulemaking Affecting Heavy-Duty Otto-Cycle Engines, Fuel-Fired Heaters, and LEV Regulations (page 4)
- CARB Adopts Further Amendments to CaRFG3 Regulations, Revising Phaseout Schedules for Residual MTBE and Other Oxygenates (page 8)
- CARB Adopts Air Toxic Control Measure Limiting School Bus Idling (page 12)
- CARB Holds Workshop on New Draft Diesel Particulate Control Measure for Solid Waste Collection Vehicles (page 16)
- CARB Hears Enhanced Vapor Recovery Technology Review, Adopts New Test Procedures and Changes to System Certification Procedures (page 20)
- CARB Adopts Hearing Procedure Changes for Administrative Penalties (page 25)
- CARB Seeks Approval of EMFAC2002 Model (page 27)
- CARB Launches ZEV Fleet Incentive Program – Only Full-Function ZEVs Are Eligible for Funding (page 29)
- I/M Review Committee Meets for First Time in 13 Months (page 30)
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## December 2002

- CARB Staff Releases “Strawman” Proposal for Changes to the ZEV Mandate and Holds Workshop – Proposal Would Essentially Shift the Focus of the Mandate from Production of Battery Electric Vehicles to a Development Program for Hydrogen Fuel Cell Vehicles (page 2)
- CARB Holds Workshop on Emissions Inventory of Greenhouse Gases as First Step to a New Class of Vehicle Regulations (page 13)
- CARB Staff Holds “Informational Session” on the EMFAC2002 On-Road Motor Vehicle Emissions Model – Revisions to Model Reduce 2010 Statewide ROG and CO Emission Estimates by 12.5% and 9.7%, Respectively, and Increase NOx Estimates by about 8% (page 16)
- CARB Staff Holds Another Workshop on Exhaust and Evap Regs for Small Off-Road Engines (page 21)
- CARB Releases New Draft Diesel Particulate Control Measure for Solid Waste Collection Vehicles, Schedules Public Workshops (page 27)
- CARB Holds Sixth Transport Refrigeration Unit Workgroup Meeting, Presents New Requirements for TRU ATCM (page 30)
- CARB Holds Another Working Group Meeting on Vapor Recovery Requirements for Aboveground Tanks – Focus is on Fugitive Emissions (page 36)
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## November 2002

- CARB Staff Holds Public Meeting on Fuel Activities, Discusses Additional Proposed Amendments to CaRFG3 Regulations to be Presented to the Board (page 2)
- CARB Releases Staff Report on Proposed Amendments to Phase 3 Reformulated Gasoline Regulations – Changes are Related to De Minimis Levels of MTBE and Other Oxygenates (page 7)
- CARB Staff Presents Status Report on Off-Road Regulations; Staff Highlights Accomplishments to Date and Stresses Need for Further Emissions Reductions (page 11)
- CARB Adopts Modifications to Transit Bus Fleet Rule and Interim Certification Procedures for Heavy-Duty Hybrid-Electric Vehicles (page 15)
- CARB Releases Staff Report on Proposed Amendments to Enhanced Vapor Recovery Program – Proposed Changes Are Relatively Minor Although No Certified Phase II Systems Will Be Available by the April 2003 Implementation Deadline (page 22)
- CARB Holds Workshop on ZEV Incentives for Fleets (page 28)
- CARB Releases Staff Report on ATCM To Limit School Bus and Other Heavy-Duty Vehicle Idling At or Near Schools (page 30)
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## October 2002

- Air Resources Board Hears Staff's Plans for Implementing AB 1493; Continues to Ignore the Federal Preemption of State Standards Related to Fuel Economy (page 2)
- Refusing to Recognize that the ZEV Mandate is Moribund, CARB Meets with ZEV Infrastructure and Outreach Stakeholders (page 7)
- CARB Releases Staff Report on Proposed Modifications to Transit Bus Fleet Rule; Includes Hybrid-Electric Bus Certification Procedures (page 11)
- CARB Staff Proposes Regulatory Amendments to Align Its Heavy-Duty Gasoline Engine Standards with EPA Standards and to Make "Minor" or "Administrative" Amendments to Its LEV II Regulations for Light- and Medium-Duty Vehicles (page 15)
- CARB Holds Workshops on Draft Air Toxic Control Measure to Limit School Bus Idling; Proposed Measure Appears to Have No Opposition (page 19)
- CARB Holds Fifth Workgroup Meeting on Transport Refrigeration Units; Presents New Approach and Revises Regulatory Schedule (page 20)
- CARB Staff Holds EVR Workshop – Cost-Effectiveness Worsens, There's Still Only One Phase I System Certified, But Board Hearing on Amendments Remains on Schedule for December (page 24)
- CARB Releases Revised Draft Enhanced Vapor Recovery Technology Review – Staff Finds That Only the Dripless Nozzle Standard Is Not Feasible (page 28)
- CARB Staff Makes Last-Minute Changes to CaRFG3 Regulations (page 29)
- Legislative Update – Governor Signs Bill Expanding Enhanced Smog Check Program to the San Francisco Bay Area (page 30)
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## September 2002

- CARB Holds Meeting on ZEV Incentives – Available Funding Will Do Little to Subsidize the High Costs of Electric Vehicles (page 1)
- CARB Proposes to Amend the Definition of “Alternative Fuel” in Transit Bus Fleet Rule – Staff Hopes Changes Will Encourage Use of Alternative Fuels (page 5)
- CARB Releases Draft ATCM to Limit School Bus Idling, Expands Applicability to Other Vehicles Operating At or Near Schools; Workshops Scheduled (page 6)
- Third Workgroup Meeting on Enhanced Vapor Recovery for Aboveground Storage Tanks – Staff Focuses on Fugitive Emissions (page 8)
- Legislative Update – Bill to Implement Enhanced I/M Program in Bay Area Goes to Governor (page 11)
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## **August 2002**

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- Preliminary Injunction Issued Against 1999 ZEV Regulation (page 3)
- CARB Approves Amendments to CaRFG3; MTBE Phase-Out Delayed by One Year (page 4)
- CARB Holds Workshop on Voluntary ZEV Reporting Requirements (page 14)
- CARB Holds Hybrid-Electric Vehicle Stakeholders Meeting; Will Propose Emission-Factor-Based Interim Certification Procedure (page 19)
- Proposed Limits on School Bus Idling Presented at CARB Workshop (page 20)
- CARB Staff Conducts Another Workgroup Session on Enhanced Vapor Recovery for Aboveground Storage Tanks (page 22)
- CARB's Maritime Air Quality Technical Working Group Meets, Hears Presentations on Marine Engine Emission Control (page 24)
- CARB Waives Requirement for Vehicle Emission Configuration Bar-Code Labels as of 2003 Model Year (page 30)
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## July 2002

- Federal District Court Blocks Enforcement of ZEV Mandate – CARB Responds with Bluster About Reverting to the 1999 Version of the Mandate, But the Requirement for ZEV Credits Is Suspended for Now (page 2)
- Staff Releases Report Proposing to Postpone CaRFG3 Standards and MTBE Phase-Out by One Year (page 4)
- CARB Holds Workshop on Updates to the EMFAC Vehicle Emissions Model – Problems Discussed Included Vehicle Age Distributions and Light Truck Sales Fraction (page 8)
- Board Adopts More Stringent Annual Average Air Quality Standards for Particulate Matter but Delays Consideration of 24-Hour Standards Due to Flaws in Data Analysis (page 17)
- CARB Pats Itself on the Back for Successful Implementation of Environmental Justice Policies, But Issue Appears Headed to the Back Burner (page 25)
- CARB Holds Workshop on Recommended Changes to Enhanced Vapor Recovery Regulations – Phase II Regulations to Take Effect as Scheduled in April 2003, Despite the Lack of Certified Equipment (page 26)
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- CARB and BAR Hold Workshop on Proposed Large-Scale Remote Sensing Pilot Study (page 39)
- CARB Staff Holds Second Workshop on Clean Air Labeling Program, But Program Is Now on Hold (page 46)
- CARB Staff Proposes Hearing Procedure Changes for Administrative Penalties (page 52)
- Tighter Smog Check Standards for Late Model Cars and Trucks Result in Slightly Increased Failure Rates But Overall Failure Rate Is Down Slightly (page 55)
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## June 2002

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- A New LEV Program: Low Emission Vegetation (page 3)
- CARB Unanimously Adopts Verification Procedures for Diesel Retrofit Devices Despite Truckers' Call for Longer Warranty Periods (page 5)
- CARB Holds Workshop on Proposed Modifications to Transit Bus Fleet Rule – Main Issue is the Lack of Availability of PM Traps for Pre-1994 Bus Engines (page 12)
- CARB Holds First Workshop on Heavy-Duty Hybrid-Electric Vehicle Test Procedures (page 14)
- CARB Staff Holds Fourth Meeting with Transport Refrigeration Unit (TRU) Workgroup – Staff Continues to Propose Unwieldy Solutions to a Questionable “Problem” (page 18)
- Analysis of Latest California Air Quality Data Shows Continued Improvement in Most Pollutant Concentrations (page 23)
- CARB Increases Basis for Determining Parts Subject to Extended Warranty to \$450 for 2003 Model Year Vehicles (page 46)
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## May 2002

- Board Adopts Revised OBD Regulations on Split Vote – New Regulation Prohibits Consideration of Emissions Impact in Recall Decisions (page 3)
- CARB Holds Second Fuels Workshop of 2002 – Modifies Effective Dates of CaRFG3 to Harmonize With Governor’s Delay of MTBE Ban (page 8)
- CARB Staff Holds Workshops on ZEV Credit Tracking and Transportation System ZEV Credits (page 12)
- CARB Approves New “ZIP” Guidelines for ZEV Incentives (page 20)
- Board Accepts Status Report on Carl Moyer Program (page 26)
- CARB Staff Proposes Clean Air Labeling Program (page 27)
- CARB and CEC Hold Fifth Workshop on Reducing State’s “Petroleum Dependence” (page 30)
- Research Updates: UCLA Study Indicates “Adverse Birth Outcomes” Associated with Exposure to Carbon Monoxide and Particulate Matter During Pregnancy, But Smoking During Pregnancy Not Accounted For; Testing Program Indicates Particulates and Toxics From Trap-Equipped Diesels Are Lower Than From Compressed Natural Gas Engines (page 36)
- CARB Staff to Finally Take Verification Procedures for Diesel Retrofit Devices to the Board for Adoption (page 38)
- CARB Holds Workshops on ATCMs to Reduce PM From Stationary Diesel Engines and Transport Refrigeration Units (page 39)
- CARB Holds First Meeting of Maritime Air Quality Working Group (page 47)
- CARB Holds Workshop on Evaporative Emission Control Requirements for Small Off-Road Engines – Agency Shifts Proposed Regulations From Performance- to Design-Based Standards (page 51)
- CARB Staff Conducts Another Workgroup Session on Enhanced Vapor Recovery for Aboveground Storage Tanks (page 54)
- CARB Requests Data on Production Plans for Alternative-Fuel Vehicles, To Determine If Clean-Fuel Outlets Will Be Needed (page 57)
- Public Hearing Set to Revise the California Ambient Air Quality Annual-Average Standard for PM10, Confirm the Existing Sulfates Standard, and Set New PM2.5 Ambient Air Quality Standards (page 57)
- Legislative Update – AB 1058, Requiring CARB to Adopt Regulations To Reduce CO2 Emissions, Passes Senate (page 60)
- Rulemaking Calendar – CARB Announces Withdrawal of Its Clean Air Plan (page 71)

## April 2002

- CARB Issues Proposed Revisions and Additions to OBD II Regulations – If Adopted, New Requirements Would Greatly Increase OBD II System Complexity and Manufacturers’ Liability (page 2)
- CARB Releases Clean Air Plan for 2002–2020; Plan Contains Many Measures That Are Either Ineffective or Fanciful (page 20)
- CARB Holds Workshop Regarding This Year’s Plan for Fuels-Related Regulations – Delay of MTBE Ban Throws Plan into Question (page 28)
- CARB and CEC Hold Another Workshop on Need to Reduce California’s “Petroleum Dependence” (page 32)
- Toyota and CARB Settle Long-Running OBD Case (page 44)
- CARB Staff Updates Board on Transit Bus Rule; Almost All Transit Districts Are On Schedule to Meet Fleet Average NOx Limit Effective October 1, 2002 (page 46)
- CARB Holds Another Workshop on Regulations to Reduce PM Emissions from Transport Refrigeration Units; Stakeholder Comments Appear to Send Staff Back to Concept Stage (page 53)
- Legislative Update (page 57)
- Rulemaking Calendar (page 65)

## March 2002

- CEC Consultants Say Phasing Out MTBE on the Schedule Set by Governor Davis May Drive Gasoline to \$4 per Gallon, and Recommend Delaying MTBE Phaseout to November 2005 – Separate CEC Staff Report Concludes That Ethanol Supplies Are Adequate To Meet California’s Needs in 2003 (page 2)
- CEC/CARB Hold Third AB 2076 Workshop on Development of Report to the Legislature on Strategies for Reducing California’s Dependence on Petroleum – Few Details Available Regarding Analyses That Will Form the Basis for the Report (page 22)
- CARB Staff Presents Retrospective of California Air Quality Program (page 33)
- CARB Adopts Amendments to Vehicle Scrappage Regulations – Availability of Parts from Retired Vehicles Main Issue (page 36)
- High Level of Activity Continues as CARB Attempts to Implement Diesel Risk Reduction Plan:
  - – International Diesel Retrofit Advisory Committee Meets; CARB Staff Downplays Significance of Increases in NO<sub>2</sub> Emissions Due to Catalyzed Traps and Continues to Search for Approaches to Reduce Emissions from Older, Higher-Emitting Engines
- (page 40)
- –CARB Holds Third Workshop on Diesel Emission Control Strategy Verification Procedure; Board Hearing to Adopt a Procedure is Expected in May (page 45)
- –CARB Holds Third Workshop on Proposed Solid Waste Collection Vehicle Regulations; Questions and Concerns Remain About Costs, Applicability, and Durability of PM Controls (page 52)
- –CARB Holds Third Workshop on Transport Refrigeration Units; Electrification of Units While In Use at Facilities Appears to be Initial Option Favored by Staff (page 56)
- CARB Holds Workshops on Alternative Fuel Specifications; Board Hearing Postponed Until May (page 59)
- CARB Holds Technology Review Workshops on Enhanced Vapor Recovery Regulations (page 64)
- Legislative Update (page 70)
- Rulemaking Calendar (page 78)

## February 2002

- New Lawsuits Filed Challenging CARB's ZEV Mandate (page 2)
- OAL Rejects Amendments to CARB ZEV Regulations on Procedural Grounds – Considerable Uncertainty Exists Regarding Status of Amendments as Lead Time Evaporates (page 3)
- CARB Holds Second Workshop on Expansion of ZEV Incentive Program, With Focus on Fleets – Staff Proposes to Spend Millions More to Subsidize the Sale of Vehicles the Public Won't Otherwise Purchase (page 4)
- BAR Schedules Meetings to Discuss Proposed Revisions to Smog Check Program: More Stringent Cutpoints and Higher Weight Limits for Loaded Testing of Heavy-Duty Vehicles (page 10)
- CARB Will Hold Workshop on Changes to Diesel PM Retrofit Control Device Verification Procedures (page 12)
- CARB Holds Workshop on Regulations for Stationary Diesels and Refrigeration Units – Rules for PM Control of New and Existing Engines Could be Adopted in Early 2003 (page 17)
- CARB Holds Workshop Regarding Use of Particulate Traps on Transport Refrigeration Units – Low Exhaust Temperatures Pose Major Problem (page 23)
- CARB Holds Third Portable Engine Working Group Meeting – Diesel PM Control Technology Demo Program Planned (page 27)
- CARB Holds First Meeting of Maritime Air Quality Working Group to Discuss Emission Reduction Strategies (page 32)
- Legislature Reconvenes; Assembly Passes Bill (AB 1058) Requiring CARB to Regulate Carbon Dioxide Emissions from Vehicles (page 36)
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## January 2002

- CARB Adopts Service Information Regulations, Ignores Auto Industry Concerns Regarding Trade Secret Protection and Anti-Theft Security (page 2)
- CARB Holds Workshop on Expansion of ZEV Incentive Program; Non-Freeway-Capable Vehicles Proposed for Inclusion
- (page 11)
- CARB Presents Results of CaRFG Commingling Study to Working Group via Conference Call (page 15)
- CARB Holds Workshop on Draft Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities Using Aboveground Storage Tanks (page 17)
- CARB Adopts Environmental Justice Policies and Actions
- (page 20)
- CARB Proposes Less Stringent Motor Fuel CNG and LPG Specifications in Order to Improve Supply and Eliminate Intentional Non-Compliance with Existing Regulations (page 23)
- CARB Issues Annual Determination Regarding Clean Fuel Outlets; No Outlets Required for 2003 (page 25)
- Rulemaking Calendar (page 26)

## **December 2001**

- CARB Issues Two Additional 15-Day Notices Regarding ZEV Mandate – Staff Continues to Make Regulatory Modifications That Exceed the Agency’s Authority (page 1)
- CARB Amends LEV II Program to Include PM Standards for Gasoline-Powered Vehicles and Other Changes to Harmonize (Partially) with Federal Tier II Regulations (page 4)
- CARB Requests Information for Off-Road Diesel Emission Controls for Tiers 2 and 3 and Beyond – Agency to Attempt to Force PM and NOx Aftertreatment Devices on Off-Road Engines (page 8)
- CARB Adopts Revisions Broadening Its List of Vapor Recovery Equipment Defects (page 9)
- CARB Evening Workshop on “Environmental Justice” Draws Little Interest (page 11)
- Rulemaking Calendar (page 15)



## November 2001

- CARB Finally Releases 15-Day Notice of Changes to ZEV Mandate – Agency Takes Nine Months to Completely Rewrite Regulations in Apparent Violation of State Law (page 2)
- California Fuel Cell Partnership Releases Study of Fuel Options – Assumptions Used to Demonstrate a “Success Scenario” for Hydrogen Fuel are Unrealistic (page 8)
- CARB Adopts More Stringent Emissions Standards for 2007 and Later Model Year Heavy-Duty Diesel Engines (page 10)
- CARB Adopts Revised Vapor Recovery Certification and Test Procedures (page 17)
- CARB Approves Optional Zero-Evap Certification Test Procedure Proposed by Alliance of Automobile Manufacturers (page 19)
- CARB Staff Holds Enhanced Vapor Recovery Technology Review Workshop (page 22)
- CARB Announces Public Hearing on Service Information Regulations; Revised Package Allows More Time for Compliance (page 28)
- CARB Holds Workshop on Proposed Alignment of Agency’s Scrappage Regulations with BAR Regulations (page 29)
- CARB Approves Eight “Grants for Promising Technologies” Under Innovative Clean Air Technologies (ICAT) Program (page 32)
- CARB Increases Basis for Determining Parts Subject to Extended Warranty to \$440 (page 33)
- Legislative Update (page 34)
- Rulemaking Calendar (page 39)

## October 2001

- CARB/CEC Hold Joint Workshop to Discuss Strategies for Reducing California's Dependence on Petroleum – Workshop Represents Kick-Off for the Latest Go-Round of Drum Beating by Alternative-Fuel Advocates (page 2)
- CARB Proposes “Minor” Revisions to LEV II Program (page 21)
- CARB Board to Consider Alignment of California and Federal Requirements for 2007+ Heavy-Duty Diesel Engines (page 23)
- CARB Takes a Number of Actions Related to Diesel Retrofits:
  - -First Retrofit Traps Are Verified by CARB and Agency Holds Workshop to Discuss Verification of Devices with PM Removal Efficiencies of Less than 85% (page 24)
  - -International Diesel Retrofit Advisory Committee Meets Again – Meeting Focuses on Increased NO<sub>2</sub> Emissions from Trap-Equipped Engines and Use of Oxidation Catalysts in Lieu of Traps on Older Engines (page 32)
  - -CARB Staff Presents Status Report on Transit Bus Fleet Rule – Board Disappointed in Perceived Lack of Commitment by Transit Industry and Threatens to Require All Buses to Operate On Natural Gas (page 35)
  - -CARB Holds Workshop on Proposed Regulations Requiring PM Trap Retrofits on Diesel-Powered Waste Collection Vehicles (page 46)
- CARB Proposes Amendments to Service Station Vapor Recovery System “Defects List” – Purpose Is to Improve Identification of Defects and System Efficiency (page 49)
- CARB Staff Issues Mail-Out on Periodic Smoke Inspection Program – Random Audits Show Many Fleets Are Failing to Comply with Inspection Requirements (page 50)
- Legislative Update (page 50)
- Rulemaking Calendar (page 56)

## September 2001

- CARB Staff Gives Fifth Update on RFG Program Amendments – Based on Ethanol Production Survey, CEC Staff Says “2002 and 2003 Ethanol Supply Isn’t the Problem We Thought It Would Be” (page 2)
- CARB Announces Second Workshop on “Verification” Procedures for Retrofit Devices for Diesel Engines – Proposed Revisions Allow Verification of Lesser PM Reductions Where 85% (“Level III”) Is Not Achievable (page 6)
- CARB Announces Second Workshop on Diesel PM Controls for In-Use Waste Collection Vehicles – Proposal Would Require 0.01g/bhp-hr, 85% Reduction (“Level III”), or Highest Level of Certified PM Control (page 7)
- CARB Expected to Adopt Revised Vapor Recovery Procedures at October Hearing, and Grant Staff Authority to Adopt Future Certification Test Procedures Without a Full Board Action (page 8)
- CARB Compliance Division Holds Final Workshop on Service Station Vapor Recovery Equipment Defects List To Be Presented to Board in November (page 11)
- Legislative Update (page 12)
- Rulemaking Calendar (page 17)

## August 2001

- Cost-Effectiveness of Proposed OBD Reg Changes Questioned at Workshop – Staff Proposal Would Require Recall of Vehicles That Meet Emission Standards (page 2)
- CARB Staff Publishes Revised Proposal for Service Information Rule – Issues Regarding Trade Secrets and Tampering Not Yet Resolved (page 15)
- Workshop Indicates Increased Air Pollution is Likely When Ethanol Replaces MTBE in Reformulated Gasoline (page 18)
- CARB Board Gets Update on RFG Program Following U.S. EPA’s Denial of California’s Oxygenate Waiver Request – CARB and CEC Staff Presentations Blast Ethanol Mandate (page 22)
- CARB Approves 2001 Update to the Agency’s Emissions Inventory – Modest Changes Made to EMFAC Model (page 26)
- CARB Adopts Emission Standards and OBD Requirements for Sterndrive and In-Board Marine Engines – Staff Avoids Battle with Industry by Relaxing OBD Requirements (page 28)
- CARB Holds Meeting of “Portable Engine Working Group” – Latest Action in Implementation of the “Diesel Risk Reduction Plan” (page 32)
- CARB Board Approves a “Strategic Research Plan” for the Agency for 2001 to 2010 and the FY 2001–2002 Research Plan – California’s Research Strategy Includes a Focus on Global Air Pollution (page 35)
- Legislative Update (page 37)
- Rulemaking Calendar (page 42 )

## July 2001

- Ford Granted Relief on Staff Proposal to Count Subsidiary Sales Towards ZEV Production Quota – Board Adopts Staff Proposal to Require Conductive Charging Systems for EVs (page 2)
- CARB Staff Proposes Additional On-Board Diagnostic Requirements and Recall Authority Over Vehicles That Still Meet Emissions Standards (page 9)
- EPA Rejection of California RFG Oxygenate Waiver and Ethanol- Related Commingling/Permeation Emissions Appear to Spell Trouble for CARB Staff (page 24)
- CARB Staff Proposes to Adopt U.S. EPA Regulations For 2007 and Later Model Year Heavy-Duty Diesel Engines Without Modification (page 26)
- CARB Holds Meetings Related to Agency’s Diesel Risk Reduction Plan for Existing Engines – Problems Appear to Loom (page 27)
- CARB Holds Workshops on Several Gasoline Dispensing Vapor Recovery Issues (page 32)
- CARB to Take Standards for Gasoline Inboard and Sterndrive Marine Engine to the Board in July – Staff Drastically Scales Back Original Proposal But Includes Complex OBD Requirements (page 43)
- OEHHA Holds Scientific Meeting on Issues in Assessing the Health Impacts of Gasoline Emissions in California (page 48)
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- Rulemaking Calendar (page 59)

## June 2001

- CARB Holds Four Days of Workshops on the “California Clean Air Plan” – The Agency’s Blueprint for Controls Through 2020 Scrapes the Bottom of the Barrel and Beyond (page 2)
- CARB Holds Another Workshop on 2001 Fuels-Related Activities – Proposed July Hearing on Diesel Fuel is Postponed as the California Truckers Association Challenges CARB Staff (page 25)
- UC Davis Institute for Transportation Studies Holds Workshop on “Meeting the New CARB ZEV Mandate Requirements: Grid-Connected Hybrids and City EVs” (page 31)
- CARB Staff Proposes Amendments to ZEV Mandate Related to Multi-Manufacturer Arrangements and Standardized Charging Requirements – Staff Selects On-Board, Level 2 Conductive Charging Based on Questionable Analysis (page 41)
- CARB Holds Workshop on Diesel Retrofit “Verification” Procedure – Staff Begins to Face Practical Problems with Trap Retrofits (page 46)
- CARB Holds Workshop on Emissions Models – Revised Version of EMFAC Scheduled for July Hearing But Impact of Proposed Changes Not Yet Clear (page 51)
- CARB Announces Reorganization of Certification and Audit Functions (page 57)
- CARB Compliance Division Holds Workshop on Service Station Vapor Recovery Equipment Defects List – Goal is to Improve In-Use Performance of Systems Via Inspections (page 58)
- Senator Sher Again Introduces Legislation to Give CARB the Authority to Impose Administrative Penalties (page 61)
- CARB Holds Second Hearing in an “Environmental Justice Community” – Nothing of Substance Discussed During Legislatively Requested Hearing (page 62)
- Legislative Update (page 66)
- Rulemaking Calendar (page 74)

## May 2001

- CARB Holds Second Fuels-Related Workshop on Diesel and RFG3 Issues – Future Diesel Supply Issue Looms as Result of Plans to Maintain Unique California Requirements (page 2)
- CARB Holds Workshop on Proposed Service Information Rule – Auto Makers Object to Overly Broad Language (page 7)
- CARB Announces Workshop on “Verification” Procedures for Retrofit Aftertreatment Devices for Diesel Engines (page 13)
- Implementation of Transit Bus Regulations Discussed at CARB Workshop – Low-Sulfur Fuel Availability is a Potential Problem (page 15)
- CARB Staff Presents Status Report to Board on Carl Moyer Program for Funding of Retrofits of Low-Emission Engines (page 17)
- CARB Hears 2001 Assessment of Ozone Transport in California, Adopts New Amendments – Board Members Express Concerns About Effect of San Francisco Bay Area Emissions on Central Valley Air Quality (page 20)
- California Air Quality Data Show Continued Declines in Pollution Levels (page 22)
- Analysis of Smog Check Data Shows Program is Still Falling Short of Its Goals (page 45)
- Legislative Update (page 61)
- Rulemaking Calendar (page 71)

## **April 2001**

- CARB to Hold Workshop on Proposed Regulations for Dissemination of Service Information (page 1)
- CARB Announces Change in Focus of Off-Road Equipment Fuel Tank (OREFT) Control Measure in Letter to Stakeholders (page 4)
- CARB Holds Workshop on Proposed Modifications to CNG Regulations; Proposes New Specifications Based on “Methane Number” (page 6)
- CARB Solicits Projects and Program Suggestions for a NOx and PM Reduction Program (page 12)
- CEC Adopts Report on Costs and Benefits of a Biomass-to-Ethanol Production Industry (page 13)
- Legislative Update (page 15)
- Rulemaking Calendar (page 19)



## March 2001

- GM and Three Dealers Sue CARB Over ZEV Mandate (page 2)
- CARB Holds Kick-Off Workshop for Development of CARB's Clean Air Plan, As Blueprint for Future SIPs (page 3)
- CARB Holds Workshop Regarding Future Fuels Regulations – This Year's Focus is on Changes to Diesel Fuel Composition (page 8)
- CARB Discusses Community Health Programs, Impacts of CaRFG3 at Richmond Hearing (page 12)
- CARB Staff Holds Workshops Regarding “Support” of the ZEV Mandate in a Futile Attempt to Create a Market for a Doomed Technology (page 15)
- CARB Holds First Workshop on PM Regulations for New and Existing Stationary and Portable Diesel Engines (page 24)
- I/M Review Committee Meets Again in Non-Quorum Session, Hears More Public Testimony About Draft Recommendations (page 26)
- CARB Issues Annual Determination Regarding Clean Fuel Outlets, as Required Under Recently Amended Regulations; No Outlets Required for 2002 (page 29)
- New Legislation—AB 1390—Would Require CARB to Amend ZEV Mandate with Performance-Based Requirements (page 31)
- Rulemaking Calendar (page 37)

## **February 2001**

- CARB Proves There is No Price Too High for the Symbolic Value of Electric Vehicles – ZEV Mandate With Slower Phase-In Approved in Face of Analysis Showing It Will Increase Emissions (page 1)
- CARB Holds Workshop on Voluntary Accelerated Vehicle Retirement Regulations – Agency States that Goal Is to Align Regs with Those Used in BAR Scrappage Program (page 21)
- I/M Review Committee, Now Without a Chairman or Executive Officer, Meets in Non-Quorum Session, Hears Public Comments On Draft Recommendation (page 25)
- Rulemaking Calendar (page 28)

## **January 2001**

- Proposed Changes to ZEV Mandate Substantially Cut the Number of EVs Required in 2003 With Complex Credit Scheme – Extra Credits Would be Awarded to Gasoline-Electric Hybrids Without Regard to Whether They Provide Any Emissions Benefit (page 2)
- CARB Adopts “Off Cycle” Emissions Limits for Heavy-Duty Diesel Engines While Claiming Action Does Not Constitute a New Emissions Standard (page 10)
- CARB Adopts Guidelines for Spending \$50 Million Budgeted for Lower Emission School Buses – Greater Emissions Reductions Sacrificed In Order to Support Alternative Fuels with \$25 Million Set-Aside (page 16)
- CARB Approves \$18 Million in Subsidies for Electric Vehicles – Up to \$9,000 Per Car To Be Handed Out on First-Come, First-Served Basis (page 22)
- CARB Amends “LEV II” Regulations to Require Federal Vehicles To Be Sold in California When They Are Cleaner (page 24)
- CARB Presents Draft of Vapor Recovery Equipment Defects List at Workshop (page 26)
- Rulemaking Calendar (page 28)

## December 2000

- Fuel Cell Partnership Facility Opens With Much Fanfare CARB Chairman Lloyd Predicts Fuel Cell Technology Will Spread Very Quickly, But Others Appear to See Significant Fuel Cell Use Many Years Away (page 2)
- CARB Staff Proposes Guidelines for Doling Out Electric Vehicle Subsidies (page 6)
- CARB Adopts Follow-Up Amendments to CaRFG3 Specifications (page 7)
- CARB Adopts Updated Test Methods for Gasoline Olefin Content and Distillation Temperature (page 12)
- CARB Approves Revisions to Moyer Program (page 13)
- CARB Amends Air Quality Attainment Designations for Three California Counties (page 17)
- CARB Holds Triennial Inventory Workshops (page 18)
- CARB Staff Holds Workshop on Adopting Control Measures for Off-Road Equipment Fuel Tanks (page 22)
- CARB Issues Interim Procedures for Certification of Emission Reductions from Alternative Diesel Fuels (page 28)
- Proposed Low-Emission School Bus Program Guidelines Would Force Districts To Buy Alternatively Fueled Buses Despite the Fact that Greater Emission Reductions Could Be Achieved Using Limited Funds to Purchase New Diesels (page 31)
- Rulemaking Calendar (page 33)

## **November 2000**

- CARB Staff Releases Trial Balloons for Extra ZEV Credits and Other ZEV Mandate Changes at El Monte Workshop (page 1)
- CARB Holds Another Phase 3 Gasoline Workshop; Proposed Regulatory Package to be Presented to Board on November 16 (page 6)
- CARB Proposes Amendments to LEV II Exhaust Regulations (page 10)
- CARB Proposes Supplemental Test Procedures for Heavy-Duty Diesel Engines (page 13)
- I/M Review Committee Begins Adopting Draft Recommendations for Smog Check Program, Some of Which are Likely to Be Ignored (page 15)
- Rulemaking Calendar (page 19)

## **October 2000**

- CARB Votes Unanimously to Stay the Course on the ZEV Mandate Despite Testimony Clearly Indicating That Doing So Means Ending Up on the Rocks (page 2)
- CARB Holds Sixth Phase 3 Gas Workshop, Releases Staff Report (page 13)
- CARB Approves Diesel Risk Reduction Plan That Will Require PM Controls on All Diesel Engines by 2010 (page 23)
- CARB Withdraws Recall Orders Against GM and Isuzu, Terminates Hearing on GM Recall, and Announces All In-Use Testing To Be Done In-House (page 29)
- CARB Holds Workshop on Lower-Emission School Bus Replacement and Retrofit Program (page 30)
- CARB Holds Workshop on Proposed Standards for Spark-Ignited Inboard Boat Engines Staff Proposes Three-Way Catalysts and OBD Systems Before Presenting Any Analysis of Cost-Effectiveness (page 35)
- CARB Holds Workshop on Adequacy of Ambient Air Quality Standards in Protecting Childrens Health (page 40)
- Legislative Update Governor Approves Grant Program for Lease or Purchase of Electric Vehicles (page 42)
- Rulemaking Calendar (page 46)

## **September 2000**

- CARB Staff Report on ZEV Mandate Status Downplays Pessimistic Forecasts of Reports Commissioned by CARB and Claims EVs Will Eventually Be Cost-Competitive (page 1)
- CARB Sponsors ZEVent to Showcase Zero Emission Vehicle Technology on Eve of Biennial ZEV Review (page 4)
- CARB Holds Fifth Phase 3 Gas Workshop (page 6)
- CARBs Committee on Toxic Air Contaminants from Diesel-Fueled Engines and Vehicles Releases Its Draft Diesel Risk Reduction Plan (page 13)
- I/M Review Committee Discusses Draft Recommendations for Smog Check Program (page 17)
- Legislative Update Proposal for \$18 Million Grant Program to Subsidize ZEV Purchases Goes to Governor (page 27)
- Rulemaking Calendar (page 37)

## **August 2000**

- Ethanol Denaturant Specs and Other Issues Discussed at CARB Workshop on Phase 3 Gasoline (page 1)
- CARB Staff Issues Draft Plan for Reducing Risk Associated with Exposure to Diesel PM Control Measures Include Ultra-Low Sulfur Diesel Fuel and Particulate Traps for New and Existing On- and Off-Road Diesel Engines (page 5)
- Concerns Regarding Compliance Schedule Raised at CARB Workshop on Enhanced Vapor Recovery (EVR) Program Impact of EVR on Other States Also Addressed (page 7)
- Approval of Fiscal Year 2000/2001 Research Projects Reflects Heavy Interest in Particulate Matter (page 13)
- Yet Another Workshop Held on Modifications to LPG Specifications (page 15)
- CARB Holds Fourth Workshop on Test Method for Measuring Olefins in California Gasoline (page 17)
- Legislative Update (page 18)
- Rulemaking Calendar (page 23)



## **July 2000**

- Draft Report from the Battery Technology Advisory Panel Concludes that Electric Vehicle Battery Costs Will Exceed Targets By \$5,000 per Vehicle; Findings of Report Support Major Changes in ZEV Mandate (page 2)
- CARB Holds Another Phase 3 Gas Workshop (page 4)
- I/M Review Committee Adopts Findings Report on Smog Check Program Evaluation (page 7)
- CARB Holds Workshop on Modifications to LPG and CNG Fuel Regulations (page 9)
- CARB Holds Workshop on Guidance Updates for the California Clean Air Act (page 11)
- CARB Hears Status Report on Regional Haze Regulations (page 12)
- CARB Mail-Out Allows Use of Certification Test Results to Estimate In-Use Non-Methane Organic Gas and Formaldehyde Emissions (page 12)
- Air Quality Trends Update 1999 South Coast Ozone Maximum Hits New Low (page 13)
- Legislative Update (page 34)
- Rulemaking Calendar (page 42)

## **June 2000**

- CARB Holds Second ZEV Workshop Little New Information is Presented as Battle Lines Are Drawn for September Board Meeting (page 1)
- CARB Approves the EMFAC2000 On-Road Motor Vehicle Emission Inventory Model Significant Increases in On-Road Motor Vehicle Emissions Predicted (page 13)
- CARB Holds Second Workshop on Second Round of Phase 3 Gasoline Rulemaking (page 19)
- CARB Analysis of Smog Check Program Discussed at Workshop Draft Analysis Shows Emissions Reductions are Falling Short of SIP Target (page 25)
- I/M Review Committee Delays Approval of Program Evaluation Report in Response to Barrage of Criticism from CARB and Smog Check Station Owners (page 30)
- UCB/LBL Further Delays I/M Review Committee Report (page 36)
- Legislative Update (page 37)
- Rulemaking Calendar (page 49)

## **May 2000**

- Governor Appoints William Burke, Chair of SCAQMD, to California Air Resources Board (page 1)
- CARB Releases Draft Evaluation of Smog Check Program; Analysis of Roadside Data Shows Program is Falling Short of Goals (page 3)
- Legislation Proposed to Give CARB Power to Impose Penalties Administratively (page 4)
- CARB Staff Hears Status Report on Portable Fuel Container Rule Implementation; Majority of Manufacturers Appear Ready to Comply (page 6)
- CARB Makes Annual Request for Alternative-Fuel Vehicle Production Estimates; Trivial Production Volumes Again Appear Likely (page 8)
- CARB Increases Basis for Determining Parts Subject to Extended Warranty to \$420 (page 8)
- Legislative Update (page 9)
- Rulemaking Calendar (page 21)

## April 2000

- CARB Holds First Workshop in Preparation for Biennial Review of the ZEV Mandate  
Dozens of EV Drivers and Environmentalists Testify in Support of EV Production Quotas  
(page 2)
- Second CARB Workshop Related to Biennial Review of the ZEV Mandate Addresses  
Regulatory Status of Multi-Manufacturer Arrangements (page 12)
- CARB Holds First in a Series of Workshops on Second Round of Phase 3 Gasoline  
Rulemaking (page 15)
- CARB Adopts Enhanced Vapor Recovery Program With Newly Revised Implementation  
Dates (page 20)
- CARB Approves Recommended Area Designations for the Federal Eight-Hour Ozone  
Standard (page 30)
- Carl Moyer Program Advisory Board Holds Hearing, Voices Support for Increased Funding  
for In-Use Heavy-Duty NOx Reduction Projects (page 31)
- Preliminary Analysis of Smog Check Program Benefits Presented to I/M Review Committee  
Bizarre Analytical Techniques Used to Claim Program Improvements Unlikely (page 34)
- Analysis of California Smog Check Data from October 1999 (page 35)
- CARB Holds Workshop on 2000-01 Research Projects (page 48)
- Legislative Update (page 49)
- Rulemaking Calendar (page 60)

## **March 2000**

- ALJ Issues Proposed Decision in Toyota OBD II Case and Rejects Recall Order (page 1)
- CARB Approves Revised Proposal for Transit Bus Fleet Rule and Urban Bus Engine Standards (page 4)
- CARB Holds Review of Off-Road SI and CI Engine Technology (page 9)
- OAL Disapproves Off-Road Aftermarket Parts Regulations; Staff Issues New 15-Day Notice (page 18)
- Carl Moyer Program Advisory Board Holds First Meeting, Hears CARB Status Report, Considers Ways to Increase Funding for In-Use Heavy-Duty NOx Reduction Projects (page 19)
- I/M Review Committee Hears Another Update on Smog Check Program Evaluation (page 27)
- Legislative Update (page 29)
- Rulemaking Calendar (page 38)

## **February 2000**

- Closing Arguments Held in Toyota OBD II Case (page 2)
- California Environmental Policy Council Approves Reports on the Health Hazards and Fate and Transport of Ethanol for Use in CaRFG3 (page 3)
- CARB Holds Final Enhanced Vapor Recovery Workshop; Proposal Scheduled to be Presented to Board in March (page 10)
- I/M Review Committee Hears Status Report on Smog Check Program Evaluation (page 16)
- CARB Hears Staff Proposal for Transit Bus Fleet Rule and Urban Bus Engine Standards; Delays Decision Until February (page 21)
- CARB Approves Status Report on Carl Moyer Program (page 29)
- CARB Issues MAC Regarding Direct Ozone Reduction Technologies for NMOG Credit (page 30)
- CARB Adopts Amendments to 2000 and Later Off-Road Compression-Ignition Engine Regulations (page 32)
- CARB Hears and Approves Staff Report on Leaf Blowers (page 37)
- Legislature Reconvenes; Early Activity Focuses on Smog Impact Fee (page 38)
- Rulemaking Calendar (page 41)

## **January 2000**

- CARB Approves Report Finding That There are No Significant Air Quality Impacts Associated with the Use of Ethanol in Gasoline, and Adopts Phase 3 RFG Regulations (page 1)
- Energy Commission Approves Staff Report on Biomass Ethanol Fuel Potential; Sounds Note of Caution Re Subsidies (page 15)
- CARB to Hear Transit Bus Fleet Rule and Urban Bus Engine Standards Proposal (page 19)
- CARB to Consider Amendments to 2000 and Later Off-Road Compression-Ignition Engine Regulations (page 24)
- CARB Staff to Present Status Report to Board Regarding Moyer Subsidy Program for Heavy-Duty Engines (page 27)
- CARB Staff to Present Draft Report to the Legislature on the Potential Health and Environmental Impacts of Leaf Blowers to Board for Approval (page 28)
- Rulemaking Calendar (page 29)

## December 1999

- CARB Holds Final Workshop on Phase 3 RFG and Predictive Model Staff Adds Driveability Index to Proposed Specification, But Auto Industry Pushes for Even Lower Sulfur, T50, and T90 Levels (page 2)
- California Energy Commission Holds Public Hearing on Economic Impacts of Proposed Phase 3 RFG Specifications (page 9)
- Joint Workshop Held on the Health Risk of Using Ethanol in Gasoline; Agencies See Little Cause for Concern (page 15)
- California Energy Commission Hears Staff Report on Ethanol from Biomass Many Call for State Subsidies Based on Benefits Claimed for Using Ethanol as a Fuel (page 21)
- CARB Holds Sixth Workshop on Enhanced Vapor Recovery at Gasoline Stations Many Aspects of the Program Have Yet to Be Defined by Staff (page 28)
- CARB Holds Workshop on New EMFAC2000 Vehicle Emissions Model; Adoption Delayed Until March Due to Miscellaneous Problems (page 32)
- I/M Review Committee Hears Status Report on Program Evaluation and Briefing on Smog Check in the Context of the State Implementation Plan (page 41)
- CARB Staff Reports to Board on 1999 Legislative Activity (page 45)
- CARB Approves Designation of New State Ozone Nonattainment Area; Northern Sonoma County Violations Appear to be Due to Transport from Northern San Francisco Bay Area (page 47)
- Rulemaking Calendar (page 47)



## November 1999

- CARB Releases Proposed Phase 3 Reformulated Gasoline Regulations Staff Ignores Auto Industry Pleas for a 5 ppm Cap on Sulfur and Proposes Ban on All Oxygenates Other than Ethanol, to Begin in 2003 (page 2)
- Evidentiary Phase Completed in Toyota Recall Case (page 7)
- CARB Holds Symposium Regarding Zero and Near-Zero Emission Technologies Staff Remarks Provide Insight to Future CARB Regulatory Activities (page 9)
- CARB Staff Prepares Enforcement Initiative (page 15)
- CARB Holds Another Enhanced Vapor Recovery Workshop, Discusses Cost-Effectiveness Analysis (page 16)
- CARB Staff Holds Workshop on Proposed Transit Bus Fleet
- Rule and Urban Bus Engine Standards; Announces that Zero PM Standard as Stated in Staff Proposal Is Actually Equivalent to 0.004 g/bhp-hr (page 19)
- CARB Staff Claims Heavy-Duty Vehicle Smoke Inspection a Success in Status Report to Board (page 27)
- I/M Review Committee Meets in Redondo Beach, Hears Presentation by CARBs Tom Cackette on the Future of the I/M Program and by Joel Schwartz on the Committees Own Smog Check Program Evaluation (page 30)
- Joint Workshop Held Regarding Environmental Fate of Ethanol Used in Gasoline Findings Indicate that Ethanol Use Does Not Represent an Environmental Hazard (page 35)
- Appeals Court Rules Smog Impact Fee Unconstitutional (page 44)
- Legislative Update Governor Signs All But Two Bills (page 45)
- Rulemaking Calendar (page 49)

## **October 1999**

- CARB Holds Workshop on Phase 3 Reformulated Gasoline and the Predictive Model; Auto Industry Charges that Proposed Phase 3 RFG Specification Will Degrade Air Quality (page 1)
- CARB Adopts Regulations to Control Spillage from Portable Fuel Containers and Approves Gas Can Emission Inventory (page 6)
- CARB Staff Holds Workshop on Leaf Blowers; Draft Report Makes No Recommendations (page 10)
- Energy Commission Holds Workshop on Biomass-to-Ethanol Fuel Potential; Hears Calls for State Biomass Policy, Public Funding, and Guaranteed Markets (page 15)
- Legislative Update Several Bills Still Awaiting Action by Governor (page 21)
- Rulemaking Calendar (page 29)

## **September 1999**

- Update on New Board Member (page 1)
- CARB Staff Holds Two Workshops in August Regarding Changes to the Predictive Model and Proposed Phase 3 Gasoline Specifications (page 2)
- CARB Holds Another Enhanced Vapor Recovery Workshop (page 8)
- CARB Holds Meeting to Discuss Issues Related to Liquefied Petroleum Gas (page 15)
- CARB Holds Workshop to Discuss Emission Inventory Research for PM2.5 from Point and Area Sources (page 18)
- I/M Review Meets Again, Discusses Evaluation of Smog Check Program Effectiveness (page 21)
- Legislative Update Three New Resolutions Address Fuel Issues (page 29)
- Rulemaking Calendar (page 41)

## **August 1999**

- Governor Davis Appoints New Member of California Air Resources Board to Replace Lynne Edgerton (page 2)
- CARB OBD II Recall Hearing Begins Against Toyota (page 2)
- CARB Amends Clean Fuel Outlet Requirements, with Executive Officer Now Granted Discretionary Authority to Make Future Changes (page 4)
- CARB Grants Chevron Emergency Variance from California RFG Specifications (page 6)
- CalEPA Presents Work Plans for Environmental Fate and Transport Study of Ethanol in Gasoline (page 13)
- CARB Holds Another Enhanced Vapor Recovery Workshop (page 17)
- ZEV Implementation Committee Meets Again No Real Progress Reported (page 19)
- CARB Holds Public Meeting on Leaf Blowers (page 22)
- CARB Holds Third Workshop on Olefin Test Method Update (page 23)
- Legislative Update (page 24)
- Rulemaking Calendar (page 37)

## July 1999

- New Member Appointed to California Air Resources Board; Replaces Sally Rakow (page 2)
- State Budget Includes Amendments to Smog Check Program, But BAR Staff Indicate the Changes Will Not Lead to Further Weakening of Smog Check II (page 3)
- At June Board Hearing, CARB Approves MTBE Labeling Requirements and Repeals Oxygenate Requirements in the Lake Tahoe Area (page 5)
- CARB Approves Modifications to Stage II Certification and Test Procedures (page 9)
- CARB Holds Workshop on Proposed Changes to OBD II Requirements (page 12)
- CEC Adopts Timetable for Phase-Out of MTBE, Which Extends through December 31, 2002 (page 24)
- CARB Holds Another Monthly Meeting Regarding Development of Phase 3 Gasoline Regulations Staff Appears Determined to Meet Arbitrary Deadline for Adoption of Regulations Set by Governors Executive Order (page 30)
- CARB Holds Workshop on Proposed Portable Fuel Container Regulations; Proposes 0.4 Gram/Gallon/Day Permeation Standard (page 33)
- CARB Holds Workshop on Moyer Program Guidelines Staff Considers Providing Direct State-Funded Subsidies for the Use of Alternative Fuels (page 38)
- CARB Staff to Present Amendments to the Clean Fuel Outlet Requirements at the July Board Hearing (page 41)
- CARB Addresses Periodic Smoke Inspection Requirements for Fleet Vehicles in June Mail-Out (page 42)
- CARB Issues Manufacturers Advisory Correspondence on Demonstrating Compliance with I/M Requirements (page 43)
- CARB Holds Workshop Regarding Trends in Weekend Ozone Levels as Research Effort Begins (page 45)
- Legislative Update State Budget Includes Funding for Study of Exposure to Vehicular Diesel Exhaust (page 48)
- Rulemaking Calendar (page 60)

## June 1999

- CARB Proposes Changes to OBD II Requirements Staff Continues to Propose Addition of New Requirements to Regulations Originally Adopted in 1989 (page 2)
- CARB Holds Workshop on Proposed MTBE Labeling Requirements and Repeal of Regulations Requiring the Sale of Oxygenated Gasolines in the Lake Tahoe Area During the Winter of 1999/2000; Issues Staff Report (page 7)
- Fourth Monthly CARB Workshop On Phase 3 Gasoline Regulations Focuses on Potential Revisions to Predictive Model (page 11)
- CARB Holds Workshop to Discuss Proposed Enhanced Vapor Recovery Program, Releases Draft Staff Report on Four Revised Stage II Certification and Test Procedures (page 15)
- CARB Releases Area Designations for New Federal Eight-Hour Ozone Standard (page 23)
- CARB Releases Draft Portable Fuel Container Spillage Control Regulations (page 26)
- Latest Analysis of Air Quality Data Shows That Departure of El Niño Only Slightly Harmed Air Quality in the South Coast (page 28)
- Legislative Update (page 49)
- Rulemaking Calendar (page 65)

## **May 1999**

- CARB Holds Third Monthly Workshop Regarding Development of Phase 3 Gasoline Regulations (page 1)
- CARB Holds Second Diesel TAC Advisory Committee Meeting (page 7)
- I/M Review Committee Takes Positions on Smog Check Legislation (page 11)
- CARB Holds Workshop on Tier 2 Requirements for Small Off-Road Engines (page 17)
- CARB Requests Data from Manufacturers on Production of Alternative-Fueled Vehicles (page 19)
- Legislative Update Many Bills Amended and Passed to Fiscal Committee; Several I/M-Related Bills Dead or Dropped (page 19)
- Rulemaking Calendar (page 40)

## **April 1999**

- Governor Davis Announces Phase-Out and Ban of MTBE in California Gasoline (page 1)
- Governor Davis Appoints Law School Professor Hugh Friedman to Serve on CARB Board (page 2)
- CARB Holds Second Meeting to Discuss Emissions Data for CBG Regulation Development (page 3)
- CARB Holds Workshop to Discuss Proposed Enhanced Vapor Recovery Program (page 7)
- CARB Holds Workshop on Proposed Modifications to the Clean Fuel Regulations Regarding Clean Fuel Outlets (page 11)
- CARB Keeps Cost of Parts Requiring Extended Warranty as  $\exists$ \$410 (page 15)
- Legislative Update Dozens of New Bills Will Face Policy Hearing in April; Prop. 65 Warning Requirements for Diesel Exhaust Addressed by Two Bills (page 15)
- Rulemaking Calendar (page 30)



## **March 1999**

- Alan Lloyd, Former Chief Scientist at the South Coast Air Quality Management District, Appointed as CARB Chairman (page 1)
- CalEPA Hears Two Days of Testimony on University of Californias MTBE Report (page 2)
- CARB Holds Meeting to Discuss Emissions Data for CBG Regulation Development (page 11)
- CARB Approves Moyer Program Providing Economic Incentives for Heavy-Duty Engine Replacement and Retrofit (page 15)
- CARB Announces Workshop Regarding Proposed Changes to Agencys Clean Fuel Regulations (page 20)
- Legislative Update Smog Check Program Continues to Receive Attention (page 21)
- Rulemaking Calendar (page 29)

## **February 1999**

- CARB Staff Presents 1999 Rulemaking Calendar to Board (page 1)
- ZEV Implementation Committee Meets Again No Real Progress Reported (page 7)
- I/M Review Committee Continues to Make Little Progress Towards Accomplishing Its Basic Mission of Smog Check Program Evaluation Relevance of the Committee Under the New Administration is Uncertain (page 13)
- CARB Holds Workshop on Off-Road Refueling Spillage Control Regulation for Portable Fuel Containers (page 21)
- Analysis of January and July 1998 BAR90ET vs. Early 1996 BAR90 Smog Check Data Shows No Change in Model Year Emissions for 1980+ Model Years; BAR Says ASM Test Data Are Not Available (page 25)
- Legislative Update Four New Bills Propose to Restrict Use of MTBE (page 39)
- Rulemaking Calendar (page 44)

## January 1999

- Winston Hickox, Former Deputy to CARB Chairmen, Appointed Secretary of CalEPA by Governor-Elect Davis (page 2)
- CARB Approves Regulations for a Voluntary Accelerated Vehicle Retirement Program (page 3)
- Board Considers Toyotas Request for a Public Hearing on Recall Notice Matter to be Heard Before an Administrative Law Judge (page 9)
- Board Approves Revised Staff Proposal for New On-Road Motorcycle Standards After Reaching Behind-the-Scenes Deal with Harley-Davidson Widespread Use of Catalytic Converters Expected by 2008 (page 12)
- CARB Rejects RVP Exemption for 10% Ethanol-Gasoline Blends But Approves Increase in Oxygen Cap to 3.5% by Weight (page 18)
- California Energy Commission Adopts Staff Report on Supply and Cost Alternatives to MTBE in California Gasoline (page 26)
- CARB Approves Amendments to LPG Specs (page 30)
- CARB Adopts Revised Pleasure Craft Exhaust Emissions Inventory Over Industrys Objection that Insufficient Time Was Provided for Review (page 34)
- CARB Adopts Gasoline Spark-Ignition Marine Engine Regulations (page 40)
- Revisions to 1997 and Later Off-Road Motorcycle Regulations Approved (page 52)
- CARB Adopts Revisions to the Statewide Portable Equipment Registration Program General Support from Districts and Industry (page 55)
- Clean-Fuel Outlets Not Required for 2000 (page 58)
- CARB Announces Recommendations for Updating List of Toxic Air Contaminants, Including Action Related to MTBE, PAH, and Styrene (page 58)
- 1999 Legislative Session Begins (page 59)
- Rulemaking Calendar (page 63)

## **December 1998**

- LEV II Regulations Adopted Manufacturers Claim Truck Compliance May Not Be Possible (page 2)
- California Energy Commission Staff Holds Workshop to Discuss Removal of MTBE from California Gasoline (page 13)
- CARB Holds Workshop to Discuss Proposed Enhanced Vapor Recovery Program (page 18)
- CARB Holds Workshop on Proposed Amendments to LPG Specs Staff Recommends Retaining Current Interim Limit of 10% Propene (page 26)
- CARB Holds Workshop on Sunset Review of Fuel Regulations
- Little Accomplished (page 28)
- CARB Holds Workshop on Proposed Updates to the Off-Road Refueling Emissions Inventory (page 30)
- CARB Holds Workshop on Economic Incentives for Heavy-Duty Engines (page 33)
- CARB Adopts New Certification Procedures for Aftermarket Parts for Off-Road Vehicles, Engines, and Equipment (page 35)
- I/M Review Committee Continues Floundering as It Considers Smog Check II Program Evaluation Framework and Test Volume Issues BAR Chief Marty Keller Tells Committee He Doesnt Expect to Be Around Much Longer Since Administration Is Changing (page 39)
- Rulemaking Calendar (page 50)

## November 1998

- CARB Adopts Emissions Regulations for Large Spark-Ignited Off-Road Engines Staff Proposes Several Last-Minute Concessions to Win Industry Support (page 3)
- CARB Holds First Meeting of Diesel Risk Management Advisory Committee Staff Makes It Clear That Panel Is Simply a Forum for the Public to Express Their Concerns and CARB Will Draft Reports to Board (page 9)
- California Energy Commission Releases Report Regarding Supply and Cost Impacts of Eliminating MTBE From California Cleaner Burning Gasoline Report Suggests That MTBE Use Could Be Eliminated in Three to Six Years Without Supply Problems or Price Spikes (page 17)
- CARB Holds Workshop Regarding Ethanol Gasoline Blends Staff Finds Increased Ozone-Forming Potential Due Mainly to Higher Evaporative Emissions (page 20)
- CARB Staff Releases Proposed Regulations for Voluntary Accelerated Vehicle Retirement Programs, for Board Consideration in December (page 26)
- CARB Staff Makes Further Changes in Proposed Standards for On-Road Motorcycles Following October 7 Workshop Latest Proposal Would Not Require Catalysts on Most Bikes (page 31)
- CARB Issues Staff Report Outlining Revisions to Off-Road Motorcycle Regulations Non-Certified Equipment To Be Allowed To Operate in Areas and During Seasons in Which Ozone Impact Is Minimal (page 40)
- CARB Releases Staff Report for Gasoline Spark-Ignition Marine Engine Regulations Tier 3 Standards More Stringent Than September Proposal (page 42)
- CARB Issues Mail-Out #MSC 98-26, Proposing Certification Procedures for All Aftermarket Parts and Conversions for Off-Road Vehicles, Engines, and Equipment (page 46)
- CARB Holds Workshop in Attempt to Deal with CNG Fuel Composition Problems Staff Encourages Gaming of Regulations (page 47)
- CARB To Consider Amending the Motor Vehicle LPG Specs Staff Proposal Would Increase Allowable Levels of Propene and Butane and Heavier Hydrocarbons (page 51)
- CARB To Hold Workshop on the Review of Specifications for Motor Vehicle Fuels, as Directed by Governor Wilsons Executive Order to Perform a Sunset Review of All California Regulations (page 54)
- CARB To Hold Workshop Regarding Economic Incentive Program for Low-Emission Heavy-Duty Engines (page 55)

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- CARB Holds Another EMFACX Workshop Model Release Is Delayed Again; Staff Appears To Still Face a Serious Challenge To Finish in Time for February Approval by Board (page 57)
- CARB To Consider Revisions to the Statewide Portable Equipment Registration Program (page 58)
- CARB Approves Revisions to the Carbon Monoxide SIP (page 61)
- I/M Review Committee Discusses Repair Industry Training and Performance and Considers Smog Check Evaluation (page 62)
- Rulemaking Calendar (page 71)

## **October 1998**

- Dunlap to Step Down as Chair of the California Air Resources Board (page 2)
- CARB Staff Releases LEV II Proposal Zero Evaporative Emission Standard and Proposed Running Loss and Refueling Standards Dropped, Otherwise Few Changes (page 2)
- CARB Adopts Changes to the Gasoline Deposit Control Additive Regulation (page 10)
- CARB Approves New Procedures for Adjudicatory Hearings Under Which CARB Employees Serve as Hearing Officers to Consider Disputes Between CARB Staff and Regulated Parties (page 12)
- CARB to Consider Regulations for Large Spark-Ignition Off-Road Engines (page 15)
- CARB Relaxes Proposed Gasoline Spark-Ignition Marine Engine Rule (page 19)
- Proposed Revisions to Organic Gas Speciation Profiles Discussed at CARB Workshop (page 21)
- CARB Proposes Regulations to Certify Aftermarket Parts for Offroad Vehicles, Engines, and Equipment (page 26)
- I/M Review Committee Discusses Smog Check Program Evaluation; Hears More on Remote Sensing (page 28)
- Legislative Update Governor Vetoes NOx Emission Reduction Program and Oxygenate Legislation (page 36)
- Rulemaking Calendar (page 43)

## September 1998

- After Nine Years of Debate, CARB Votes to Identify Diesel Particulate Matter as a Toxic Air Contaminant (page 2)
- CARB Approves Changes to Non-ORVR-Related Certification and Test Procedures for Gasoline Vapor Recovery Systems (page 6)
- CARB Votes to Exempt CO Attainment Areas From Winter Fuel Requirements, But Denies Staffs Proposal to Raise Oxygen Cap on Cleaner Burning Gasoline (page 8)
- CARB Holds Workshop to Discuss Proposed Enhanced Vapor Recovery (EVR) Program (page 13)
- CARB Workshop on Emissions Inventory Reconciliation Finds Problems with the Inventory and Limitations to the Inventory Analysis Techniques (page 22)
- CARB Holds Workshop to Discuss Proposed Changes to PM Size Fractions and Speciation Profiles (page 26)
- CARB Staff Holds Workshops on Portable Equipment Registration Program (page 28)
- Legislative Update Numerous Bills Are Now on Governors Desk (page 32)
- Rulemaking Calendar (page 47)



## **August 1998**

- CARB Staff Holds Workshop on LEV II Proposal Auto Manufacturers Strenuously Object to Many Aspects of the Staff Proposal (page 2)
- ZEV Status Report to CARB Board Receives Little Attention (page 21)
- Fuel Cell Advisory Panel Presents Status Report to CARB Board on Development of Fuel Cell Technology (page 29)
- CARB Board Hears Testimony on Listing Diesel Exhaust as Toxic Air Contaminant, But Delays Action Pending Legislative Action (page 33)
- CARB Staff Releases Proposed Amendments to California Cleaner-Burning Gasoline Regulations (page 41)
- Third Workshop Held on Combustion Chamber Deposits (page 44)
- CARB Holds EMFACX Workshop Significant Work Remains to Meet the November Board Hearing Target (page 49)
- I/M Review Committee Hears Proposal on Remote Sensing (page 55)
- CARB Staff Proposal for More Stringent Standards for On-Road Motorcycles Discussed at Workshop (page 62)
- CARB Holds Cost-Effectiveness Meeting Regarding ORVR/Stage II Compatibility Problems (page 65)
- CARB Staff Holds First Workshop on Gasoline Spark-Ignition Marine Engine Regulations (page 74)
- Legislative Update Amendments to SB 1083 Would Prohibit CARB from Identifying Diesel Exhaust as a Toxic Air Contaminant (page 84)
- Rulemaking Calendar (page 97)

## July 1998

- CARB Releases Draft Staff Report and Proposed Regulatory Language for LEV II Program with Few Changes (page 2)
- CARB Holds Second Workshop on Changes to Cleaner-Burning Gasoline Regulations Staff Proposal Appears to Have Little Support (page 6)
- CARB Holds Second Workshop on Combustion Chamber Deposits Staff Moving Forward with Changes to Additive Regulations (page 14)
- CARB to Consider Proposal to Identify Diesel Exhaust as a Toxic Air Contaminant at July Board Hearing (page 20)
- CARB Staff Proposes New Standards for On-Road Motorcycles at Workshop Eventual Standards Would Require Combined HC+NO<sub>x</sub> Emissions to Approach Current Passenger Car Standards, But Strong Opposition from Motorcycle Dealers Appears Likely to Affect Outcome (page 21)
- CARB ZEV Implementation Committee Plods on as Electric Vehicles Are Demonstrated to be a Bust in California (page 23)
- CARB to Hold Workshop on Proposed Emission Standards for Gasoline-Fueled Spark-Ignited Engines Used in Marine Applications (page 27)
- CARB Releases Inventory Update for Large Spark-Ignited Engines (page 31)
- CARB Announces Workshop on Refueling Spillage Control for Small Off-Road Engines (page 32)
- CARB Staff Delivers Status Report to Board on the Innovative Clean Air Technology (ICAT) Program (page 33)
- CARB Proposes Additional Guidelines for Use of Motor Vehicle Registration Funds (page 34)
- Preliminary Data Indicate Clean-Fuel Outlets Will Not Be Required for 2000 (page 35)
- Legislative Update SB 2198 Now Proposes Fee on Refiners of Oxygenate Blends to Support Groundwater Cleanup (page 36)
- Rulemaking Calendar (page 48)

## **June 1998**

- CARB Holds Additional Consultation Meetings on Possible Changes to Cleaner-Burning Gasoline Regulations (page 1)
- CARB Delays Decision on Proposed Modifications to CARBs Stage II Certification and Test Procedures for Vapor Recovery Systems (page 9)
- CARB Staff Holds Workshop Regarding Standards for Large Spark-Ignited Engines Used in Off-Road Mobile Source Applications (page 13)
- CARB Holds Second Workshop on Proposed Test Method Updates for Olefins and Distillation Temperature (page 19)
- Correction to Ambient CO Data in Last Months Summary of Air Quality Trends (page 19)
- Legislative Update Several CARB-Related Bills Now Dead (page 23)
- Rulemaking Calendar (page 38)

## **May 1998**

- Analysis of 1996-97 Air Quality Data Shows El Niño Hastened Improvement in the South Coast Air Basin (page 2)
- CARB Holds Series of Public Consultation Meetings on Possible Changes to Cleaner-Burning Gasoline Regulations (page 21)
- I/M Review Committee Reaches Decision on Mitigation Measures; Low-Income Assistance Program Is In Jeopardy (page 31)
- CARB Announces Resumption of Roadside Smoke Inspections, and Commencement of Fleet Self-Inspection Program (page 41)
- CARB Approves Amendments to Heavy-Duty Vehicle Regulations (page 42)
- CARB Holds Meeting to Discuss Resolution of Problems Associated with Bootless-Nozzle-Type Gasoline Vapor Recovery Systems (page 50)
- CARB Announces Workshop to Consider Regulations for Off-Road Spark Ignition Engines  $\geq$  25 hp (page 55)
- CARB Holds Workshop on Administrative Hearings for Heavy-Duty Smoke Violations and Vehicle Recalls (page 56)
- Legislative Update I/M Mitigation Measures Added to AB 2311; SB 2181 Amended to Create Advisory Committee to Analyze Effectiveness of Vehicle Repair Industry (page 59)
- Rulemaking Calendar (page 76)

## **April 1998**

- I/M Review Committee Continues Discussion of Mitigation Measures for Smog Check Stations (page 2)
- CARB Discusses Amending Cleaner-Burning Gasoline Regulations to Grant Refiners Flexibility (page 13)
- CARB Holds Workshop on Control of Combustion Chamber Deposits in Gasoline Engines (page 23)
- CARB Approves Update to the Emissions Inventory for Small, Off-Road Engines (page 31)
- CARB Delays Tier 2 Standards for Small Engines and Relaxes Standards for Non-Handheld Equipment (page 34)
- CARB Scientific Review Panel on Toxics Hears No Disagreement from Researchers that Diesel Exhaust Should Be Listed as a Toxic Air Contaminant (page 45)
- CARB Requests Production Data on Alternative-Fuel Vehicles (page 56)
- CARB Revises Cost Limit for High-Priced Warranted Automotive Parts (page 57)
- Legislative Update AB 1368 and SB 1857 Amended to Propose New NOx Emission Reduction Program (page 58)
- Rulemaking Calendar (page 73)

## March 1998

- CARB Approves Withdrawal of SIP Requirement for Heavy-Duty Scrappage; Adopts New Measure, M17 (page 2)
- Summary of CARBs 1998 Rulemaking Calendar Presented to Board; Governor is Behind Aggressive Agenda (page 6)
- CARB Staff Presents an Informal Report to Board on Air Quality Trends (page 9)
- CARB Staff Proposes Revised Tier 2 Standards for Utility and Lawn and Garden Equipment Engines; Proposal Would Force Four-Stroke or Other New Technologies for Handheld Equipment in 2000 and Catalysts for Nonhandheld Equipment in 2004 (page 10)
- CARB Releases Draft Report on Identifying Diesel Exhaust as a Toxic Air Contaminant (page 19)
- CARB Scientific Advisory Committee Meeting on Reactivity Raises More Questions Than It Answers (page 20)
- Analysis of Mid-1997 Smog Check Data Reflects the Fundamental Changes in the Program Reduced Failure Rates and Increased Repair Cost Are Observed (page 25)
- Legislative Update New Bills Introduced Addressing I/M Program, Fuels, and Tax Incentives; AB 2629 Proposes Near Zero Emission Vehicles To Meet ZEV Mandate (page 35)
- Rulemaking Calendar (page 47)

## February 1998

- I/M Review Committee Makes Little Progress as Several Committee Members Object to Recommendation by Executive Officer and Chairwoman that BAR Ignore Test-Only Requirements (page 2)
- CARB Staff Proposes Replacement of SIP Measure M-7, Accelerated Retirement of Heavy-Duty Diesel Vehicles, with New Measure M-17 Targeting Excess Emissions from These Vehicles (page 9)
- ZEV Implementation Committee Meets – Committee Again Demonstrates Its Irrelevance (page 13)
- CARB Holds Workshop on Proposed Modifications to Stage II Test Procedures and Issues Associated with Onboard Refueling Vapor Recovery Interactions (page 18)
- CARB Issues Further Guidance on Misfire Monitoring and Other OBD II Requirements (page 26)
- CARB Holds First Workshop on Proposed Update of Olefin Test Method in Cleaner Burning Gasoline (page 28)
- 1998 Legislative Session Resumes – New Legislation (SB 1423) Would Require Legislative Approval of CARB and BAR Regulatory Actions (page 30)
- Rulemaking Calendar – CARB Issues 1998 Rulemaking Calendar (page 39)

## January 1998

- CARB Holds First Workshop on Proposed LEV II Program – Staff Makes It Clear That Development of This Highly Ambitious Proposal is Being Rushed for Political Reasons (page 2)
- CARB Approves Resumption of Roadside Smoke Tests for Diesel Trucks (page 14)
- CARB Approves Emission Inventory Update (page 19)
- CARB Holds Workshop on Small-Engine Portion of New OFFROAD Emission Inventory Model (page 22)
- CARB to Hold Workshops Regarding Certification Test Procedures for Stage II Vapor Recovery Systems and Interactions Between Stage II and On-Board Refueling Vapor Recovery Systems (page 26)
- CARB Holds Workshop on Proposed Heavy-Duty Diesel Rule (page 27)
- Decision on Recommended Mitigation Measures for Smog Check Stations Delayed by I/M Review Committee (page 32)
- CARB Mail-Out MSO #97-11 Invents Detailed Reporting Requirement for Service Information (page 34)
- BAR Holds Workshop on Low-Income Repair Assistance and Scrappage Programs for Vehicles Failing Smog Check Test (page 35)
- Diesel Impacts on Health and Air Quality Discussed at SCAQMD Symposium (page 44)
- No Clean-Fuel Outlets Required for 1999 (page 66)
- Rulemaking Calendar (page 66)



## December 1997

- CARB Announces First Workshop For LEV II Program – Mail-Out Portrays Successful Compliance with Existing LEV Program Requirements as a *Fait Accompli* and Staff Proposes Substantially More Stringent Standards for Post-2003 (page 1)
- CARB Board Delays Approval of Emission Inventory Update in Response to Criticism of Verification Methodologies (page 12)
- I/M Review Committee Hears Proposals for Mitigating Measures (page 20)
- BAR Proposes to Issue Test-Only Technician License (page 34)
- CARB to Hold Workshop on Small-Engine Portion of New OFFROAD Emission Model as Part of SB 2174 Process (page 39)
- South Coast AQMD Holds Conference on Diesels (page 40)
- Rulemaking Update (page 41)

## November 1997

- I/M Review Committee Hears Presentations on Program Evaluation and Public Outreach Programs (page 2)
- CARB Hears Status Report on Projects Funded for Vehicle Registration Fees Staff Report Indicates that a Substantial Portion of the \$86 Million Collected Annually is Being Spent on Ineffective Projects (page 11)
- CARB Staff to Present Emissions Inventory Update to Board for Approval in Response to Legislative Mandate – However, Update Amounts to Little More than a Rehash of the Existing Inventory (page 16)
- California Energy Commission Holds Workshop Regarding Study to Determine Impacts of an MTBE Ban (page 20)
- CARB Staff to Propose Resumption of Heavy-Duty Smoke Programs to Board – Staff and Truckers May Clash Over Opacity Standards (page 25)
- CARB to Hold Workshop Regarding New Emission Standards for Heavy-Duty Vehicles Regs Intended to be Substantially Similar to Recently Promulgated EPA Regs (page 27)
- CARB and OEHHA Staffs Brief Scientific Review Panel on Diesel Exhaust Toxicity – Panel Set to Recommend Identification of Diesel Exhaust as a Toxic Air Contaminant (page 27)
- CARB Staff Holds Workshop on New Test Procedures for Stage II Vapor Recovery Systems (page 33)
- Governor Signs Assembly I/M Amendments and MTBE Bills (page 38)
- Rulemaking Update (page 48)

## October 1997

- At New Technologies Conference, CARB Staff Proposes 0.05 g/mi NO<sub>x</sub> Standard for Cars, Light Trucks, and Sport-Utility Vehicles by 2003; Southwest Research Institute Says Sulfur-Free Diesel Fuel Needed to Minimize Emissions (page 1)
- CARB Holds Workshop on Heavy-Duty Vehicle Inspection Program in Preparation for Re-Start of Roadside Smoke Inspections (page 29)
- ZEV Implementation Committee Holds Meeting Fails to Identify or Discuss Problems with ZEV Mandate (page 36)
- CEC Fuels and Transportation Committee Holds Hearing on 1997 Fuels Report Price Volatility of California Cleaner Burning Gasoline is Major Focus (page 41)
- Series of I/M Program Amendments Go to Governor; New Cars To Be Exempt for Four Years, Pre-1974 Models May Also Be Exempted (page 47)
- Rulemaking Update (page 61)

## September 1997

- Significant Legislative Changes Made Affecting Reformulated Gasoline and I/M Program Financial Assistance and Lower I/M Repair Cost Limits Proposed for Low-Income Vehicle Owners (page 2)
- I/M Review Committee Hears Additional Presentations on Technician Training (page 16)
- BAR Holds Workshop on Establishing Category for Test-Only Technicians (page 23)
- CARB Proposes to Revise and Reactivate Heavy-Duty Vehicle Smoke Inspection Programs Trucking Industry Still Has Serious Concerns Regarding Staffs Proposal (page 29)
- CARB Report Regarding Compatibility of Stage II Vapor Recovery Systems and On-Board Refueling Vapor Recovery (ORVR) Systems Identifies Problems with Some Vehicle/Nozzle Combinations (page 33)
- CARB Requests Comments on Fuel Spillage Control as a Possible Means of Relaxing the Agencys Proposed Tier II Standards for Utility and Lawn and Garden Engines and Other Off-Road Engines (page 34)
- CARB Releases Beta Version of the OFFROAD Model (page 36)
- Rulemaking Update (page 39)

## **August 1997**

- Mark DeSalunier Replaces Patricia Hilligoss as Bay Area Member on CARB Board (page 2)
- BAR Holds Workshops on Proposed Preinspection Regulations (page 2)
- I/M Review Committee Hears Presentations on Shortage of Smog Check Technicians (page 8)
- CARB Adopts Regulations for the Supplemental Federal Test Procedure Industry Generally Supportive of Staffs Proposal (page 17)
- CARB Holds Workshop on Classification of Diesel Exhaust as a Toxic Air Contaminant (page 22)
- CARB Holds Second SB 2174 Workshop on Validation of Emission Inventories (page 44)
- CARB Holds Another Inventory Workshop Focus is on Transportation Activity Forecasting (page 50)
- I/M Bills Set for August Hearing in Senate Transportation; Statutory Language Reinstated in AB 1368 and AB 1492, But Fee on Oil Production No Longer Proposed (page 61)
- Rulemaking Calendar (page 71)

## **July 1997**

- Kern County Supervisor Barbara Patrick Appointed to CARB Board as San Joaquin Valley Representative (page 1)
- Clean-Fuel Outlets Not Yet Required for 1999, But Plans for Ethanol-Burning Trucks Raise Questions (page 3)
- CARB Proposes Regulations for Supplemental Federal Test Procedure (page 4)
- I/M Review Committee Welcomes New Member, Adopts Mitigation Recommendations (page 12)
- Senate Transportation Committee Requires Statutory Language in I/M-Related Bills; SB 521, Proposing Study of Risks Associated with MTBE Use, Passes Senate (page 21)
- Rulemaking Calendar (page 29)

## June 1997

- Governor Wilson Appoints New Board Member – Sally Rakow, formerly of the California Energy Commission, Joins Board (page 2)
- CARB Staff Presents Optimistic Status Report on Fuel Cell Technology to Board and Expert Panel is Formed To Study Fuel Cells (page 2)
- I/M Review Committee Adopts Revised Financial Assistance Recommendations (page 7)
- BAR Proposes Permanent Smog Check II Regs (page 14)
- New State Report Recommends Classification of Diesel Exhaust as a Toxic Air Contaminant (page 14)
- CARB Postpones Enhanced Evap Test for Ultra-Small Manufacturers (page 17)
- CARB Conducts Workshop on Proposed Revisions to Tier II Standards for ULGE Engines Staff Faces Strong Opposition from Industry (page 20)
- Ban on Use of MTBE Deleted from SB 521 Instead, Independent Study Proposed to Determine Risks, and CARB to List and Control MTBE as a Toxic Air Contaminant (page 32)
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## May 1997

- BAR Holds Workshops on Preinspection Policy (page 2)
- I/M Review Committee Adopts Repair Assistance and Vehicle Scrappage Recommendations (page 6)
- Repair Assistance Subcommittee Meets to Discuss Funding Sources Implementation of a Gasoline User Fee Likely to be Supported by the Oil Industry (page 13)
- CARB Proposes Supplementary Test Procedure (SFTP) Regulations Tier 1 and TLEV Requirements Similar to Federal Regulation; Separate Requirements Proposed for LEVs (page 15)
- CARB to Hold Informational Hearing on the Role of Fuel Cell Technologies in the LEV Program Agency Is Selecting Experts to Serve on Fuel Cell Technical Advisory Panel to Assess Status of Fuel Cell Development (page 21)
- CARB Holds Third Meeting of ZEV Implementation Advisory Committee Confrontations Appear to be Driving EV Supporters Towards Privatized Activities as CARB Focuses on Other ZEV Forums (page 22)
- CARB Holds Workshop Regarding Emissions Inventory Update Few Changes Will Be Made Prior to November Hearing (page 27)
- CARB Staff Schedules Workshops on Proposed Revised Tier II Standards for ULGE Engines (page 39)
- CARB Considers One-Year Postponement of Enhanced Evap Test for USVMs (page 45)
- CARB Adopts Regulations to Establish Statewide Portable Equipment Registration Program (page 46)
- 1995-96 Air Quality Data Show Continued Improvement in South Coast (page 56)
- Assembly Transportation Committee Deletes Statutory Language From I/M-Related Bills, With Intent That Language Be Developed in Conference Committee (page 74)
- Rulemaking Calendar (page 90)



## April 1997

- CARB Holds Workshops on Development of Scrappage Regulations for SIP Measure M1 (page 2)
- Further Weakening of California I/M Program Under Consideration (page 10)
- I/M Review Committee Hears Remote Sensing Presentations (page 11)
- I/M Review Committee Adopts Equipment Recommendations (page 28)
- BAR Proposes Emergency Smog Check II Regs (page 33)
- CARB to Hold Workshops Regarding Emission Inventories (page 35)
- EPA Holds Workshop on MOBILE6 Coordination with CARB Sought (page 37)
- CARB Extends 10% Propene Limit for LPG Fuels Through 1998 (page 39)
- CARB Issues Call for Data Regarding Production of Alternatively Fueled Vehicles (page 43)
- Two Bills Proposing to Repeal Smog Check II Fail Senate Transportation Hearings; New Bill Sponsored by Sierra Club Would Tax Oil to Subsidize Purchase of Low-Emission Heavy-Duty and Marine Engines (page 44)
- Rulemaking Calendar (page 58)

## **March 1997**

- I/M Review Committee Holds Fourth Meeting (page 1)
- CARB to Hold Workshops on Development of Scrappage Regulations Staff Proposal Contains Several Requirements That Will Reduce the Viability of Scrappage Programs (page 9)
- CARB Holds Meeting to Discuss Results of CARBs ORVR/Stage II Compatibility Test Program Some Problems Observed (page 15)
- Legislative Update Several New Bills Introduced: SB 679 and SB 772 Would Amend I/M Program, SB 521 Would Ban Use of MTBE (page 22)
- Rulemaking Calendar (page 28)

## **February 1997**

- I/M Review Committee Holds Another Meeting (page 1)
- CARB Holds Meeting to Discuss ORVR/Stage II Compatibility Testing Program (page 10)
- CARB Proposes Extension of Current Propene Limit for LPG (page 12)
- CARB Announces That No Clean-Fuel Outlets Will Be Required for 1998 (page 13)
- Analysis of Early-1996 BAR90 Smog Check Data Shows Little Change in Failure Rates, Increased Repair Cost (page 14)
- Legislative Update (page 23)
- Rulemaking Calendar (page 26)

## **January 1997**

- CARB Adopts Changes to OBD II Regulations Board Makes Modifications to Provide Additional Flexibility to Manufacturers (page 2)
- Governor Wilson Appoints New Board Member, Dr. William F. Friedman, to Fill Spot Vacated by Dr. Boston Also, Board Member Vagin Retires (page 7)
- Legislature Holds Another Committee Hearing on the Smog Check Program (page 7)
- CARB Holds Workshop on Motor Vehicle Border Supply Issues Related to Amending Californias Cleaner-Burning Gasoline Regulations (page 18)
- 1997 Legislative Session Begins With Introduction of Smog Check Legislation (page 20)
- NAMVECC Meeting Highlights Differences Between California and Federal Perspectives on Future Emissions Standards for Passenger Cars and Light Trucks - EPA Forecasts Increasing Use of Diesels; CARB Forecasts Substantially Lower NOx Standards (page 21)
- Rulemaking Calendar (page 23)

## December 1996

- CARB Staff Presents Status Update to Board on Implementation of LEV Program Auto Industry Agrees that Program Implementation Is on Schedule (page 1)
- New I/M Review Committee Holds Meetings on Californias Troubled Program Further Changes Adversely Affecting the Effectiveness of the Smog Check II Program Appear Likely (page 6)
- Long-Time Board Member Dr. Eugene Boston Retires Bostons Retirement Leaves a Second Vacancy and Means That Four New Members Will Sit on the Board During 1997 (page 18)
- CARB Holds Workshop on Extension of 10% Propene Limit for LPG Staff Appears Likely to Grant Continuation While LPG Fuel Specifications Are Revisited (page 18)
- CARB Issues MAC on Fill Pipe Specifications, Addressing Flapper Valve Requirement (page 22)
- Rulemaking Calendar (page 23)

## November 1996

- CARB Staff to Present Status Update on Implementation of LEV Program Staff Claims Advanced Technologies Generally Will Not Be Required and Further Lowers Cost Estimates for LEVs and ULEVs (page 2)
- CARB Releases Staff Report Regarding Proposed Changes to Agencys OBD II Regulations Staff Adopts Many Changes Recommended by Industry (page 8)
- Legislative Hearings Held on Smog Check II Program Controversy Regarding Program Continues to Escalate (page 17)
- BAR Revises Smog Check II Regulations, Further Reducing Program Requirements (page 32)
- CARB Holds First Meeting of the Zero-Emission Vehicle Implementation Advisory Committee Committee Will Play Only a Minor Advisory Role (page 33)
- CARB Releases Final Version of MVEI7G Mobile Source Emissions Inventory Model Final Version Differs Significantly from Draft MVEI7G and Predecessor EMFAC7F Models (page 36)
- CARB Stage II/ORVR Workgroup Meets to Discuss Safety and Compatibility Issues Safety Issues Continue to Be Investigated and CARB Will Test ORVR Mock-Ups to Assess Potential for Refueling Problems (page 40)
- CARB Adopts Revised Test Procedures for Diesel Fuel Properties (page 48)
- Former CARB Executive Officer Jim Boyd Joins CALSTART (page 50)
- CARB Splits Mobile Source Division, Separating It Into Control Division, Under Bob Cross, and Operations Division, Under Rod Summerfield (page 51)
- Rulemaking Calendar Update (page 52)

## October 1996

- I/M-Related Issues Continue to Heat Up:
- -State Suspends Centralized Testing Provisions of New I/M Program Latest Plan Conflicts with Existing Agreement Between EPA and State (page 2)
- -BAR Holds Hearing on Revisions to Smog Check Regulations: Comments on Revisions are Minor; Discussion Focuses on Broader Issues Related to Smog Check II Implementation (page 3)
- -Governor Signs Legislation (AB 2515) Modifying Smog Check Program (page 12)
- CARB Staff to Hold Meeting Regarding Compatibility and Safety of Stage II and On-Board Refueling Vapor Recovery Systems (page 7)
- CARB Makes HC and NO<sub>x</sub> Standards Optional for Snowthrowers and Ice Augers and Relaxes CO Standards for Specialty Vehicles (page 7)
- CARB Staff Proposes Modifications to Test Methods for Diesel Fuel Properties (page 9)
- CARB Staff Issues Mail-Out Warning Marketers of Auxiliary and Replacement Fuel Tanks That Sale and Installation of Tanks That Have Not Been Approved by CARB Is Illegal (page 9)
- Legislation Update Governor Signs I/M Legislation (AB 2515), But Vetoes AB 2573, CARBs Bill Proposing New Penalties for Illegal Fuel Blending (page 10)
- Rulemaking Calendar Update (page 18)

## **September 1996**

- Campaign Against Changes to Smog Check Program Prompts Legislative Action 2,000 Angry Motorists March on State Capitol (page 1)
- CARB Holds Workshop on Development of Scrappage Regulations Focus is on Car Collector Issues (page 3)
- CARB Staff Proposes Roll-Back of CO Standards for Specialty Vehicles and Elimination of ULGE HC and NOx Standards for Snow Removal Equipment (page 12)
- CARB Issues Flurry of MACs Related to Warranty and Recall Reporting Requirements and Off-Road Engines (page 13)
- Legislation Update AB 2515, Amending I/M Program, Goes to Governor (page 13)
- Rulemaking Calendar Update (page 27)



## August 1996

- CARB Executive Officer Jim Boyd Resigns Will Be Replaced on August 16 by Mike Kenny, Current CARB General Counsel (page 2)
- CARB Holds Workshop on OBD II Regulations Auto Industry Disputes Staffs Rosy Assessment of the Progress Towards Compliance and Requests a Large Number of Regulatory Changes Not Proposed by Staff (page 4)
- CARB Holds Workshop on Equivalent Zero Emission Vehicle Standards and Certification Requirements Staff Proposal Is Criticized by Auto Industry, Utilities, and Environmental Groups (page 17)
- CARB to Hold Second Workshop on Scrappage Program Regulations Workshop Will Focus on Car Collector Concerns (page 34)
- CARB Issues MAC Allowing Manufacturers to Use Federal Fuel and Test Temperatures for California Evaporative Emissions Testing (page 36)
- CARB Presents Board with Update on PM<sub>10</sub> SIP Development Mobile Source Controls Beyond Those in the 1994 Ozone SIP Apparently Will Not Be Included (page 37)
- CARB Makes Preliminary Announcement that No Clean-Fuel Outlets Will Be Required for 1998 (page 39)
- CARB Formally Announces Delay in Enforcement of Off-Road Recreational Vehicle Regulations Staff Also Proposes Increase in CO Emission Standards for Engines of Less Than 25 hp (page 40)
- CARB Holds Workshops on Portable Engine Program Intended to Provide Relief from Conflicting District Requirements (page 41)
- Legislation Update Most Bills Pass Second Policy Hearing Before Legislatures Summer Recess; Bills Related to Fuel Price, However, Are Not Moving (page 43)
- Rulemaking Calendar Update (page 57)

## July 1996

- Changes in CARB Board on the Horizon - Board Members Lagarias, Riordan, and Vagim Will Leave Board Before the End of the Year (page 2)
- CARB Announces Another Workshop on Equivalent Zero Emission Vehicle (EZEV) Standards - Requirements That Are Impossible to Achieve Render Staffs Latest Proposal Meaningless (page 2)
- CARB Board Hears Status Update on Issues Related to Cleaner Burning Gasoline (page 7)
- Final California Reformulated Gasoline Advisory Committee Meeting Held - Isolated Media Criticism of CARB Regulations is Main Issue (page 13)
- CARB Staff Expresses Concerns Regarding Potential for Safety Problems and Emission Increases Related to the Use of Stage II Vapor Recovery Systems in Combination with On-Board Refueling Vapor Recovery Systems - Staff Now Proposes Further Study After Recommending the Adoption of Regulations Requiring the Use of Both Systems in 1995 (page 18)
- CARB Holds Second AB 1777 Workshop (page 29)
- 1994/95 Air Quality Data Show Continued Gradual Improvement (page 31)

## June 1996

- CARB Holds Workshop on Proposed Changes to Utility and Lawn & Garden Equipment (ULGE) Regulations - Staff Proposes Major Revisions But Provides Few Details; Staffs Proposal Would Effectively Ban Two-Stroke (page 1)
- CARB Requests Data on Production Plans for Alternative-Fuel Vehicles (page 9)
- Legislation Update - Fuel Price Increases Prompt New Legislation: AB 3019 Would Provide for Sale of Nonconforming Gasoline and Diesel Fuels, SB 1967 Would Advance Implementation of the ZEV Mandate If Such Sales Were Allowed, AB 2640 Would Exempt Excise Taxes From Sales Tax; Many Bills Pass Fiscal Committee and Floor Votes (page 10)
- Rulemaking Calendar Update (page 25)

## May 1996

- Board Attempts to Deflect Focus from New Gasoline Specifications as Cause of Rapidly Increasing Prices - Testimony at Public Meeting Accuses Oil Companies of Gouging the Public (page 2)
- CARB Hears Status Report on the 1994 State Implementation Plan for Ozone - Staff Indicates EPA Approval is Imminent (page 14)
- CARB Approves CO SIP Revisions - CARB to Request that EPA Redesignate Ten Urban Areas as Attainment for CO (page 17)
- CARB Holds Meeting to Address Issues Related to Interactions Between On-Board and Stage II Vapor Recovery Systems - Agency Forms Subcommittees for Further Study (page 21)
- CARB Approves Guidelines for Off-Road Diesel Engine Emission Reduction Credit Program (page 26)
- CARB to Hold Workshop Regarding Revisions to Utility Lawn and Garden Regulations - Staff Proposes Major Changes to Tier II Standards (page 28)
- Legislative Update - Language Introduced to Cut Tax on Fuel Sales and Impose Excess Profits Tax (page 31)
- Rulemaking Calendar (page 49)

## April 1996

- CARB Delays ZEV Mandate Until 2003 - With Few Exceptions, Opposition to Boards Action is Muted (page 2)
- CARB Staff Presents Status Report on Implementation of Cleaner Burning Gasoline and Tells Board, So Far, So Good (page 12)
- Retired Mobile Source Division Chief Don Drachand Honored with Board Resolution - Replacement Not Yet Selected (page 13)
- CARB Holds Workshop Regarding the Development of Regulations for Voluntary Vehicle Scrappage Programs - Interested Groups Are Quick To Stake Out Positions (page 14)
- CARB to Consider SIP Revisions Requesting Redesignation of Ten Areas as Attainment for CO at April Hearing (page 20)
- CARB Announces Additional Delays to the Resumption of the Agencys Heavy-Duty-Vehicle Smoke Enforcement Programs - CARB Seeks To Establish a Voluntary Program in the Interim (page 21)
- CARB To Consider Guidelines for Credits Programs Involving Off-Road Diesel Engines (page 22)
- CARB Holds Workshop on Development of Emission Credits (page 24)
- CARB Issues MAC on Unleaded Fuel Labels (page 24)
- Analysis of Latest Smog Check Data Shows Little Change Over Past Year (page 25)
- Legislation Update - Bills Addressing Smog Impact Fee Pass First Policy Committee, Little Other Legislative Action (page 33)
- Rulemaking Calendar Update (page 48)

## **March 1996**

- CARB Releases Staff Report and Memorandum of Agreement Regarding Delay of ZEV Mandate (page 2)
- MSD Chief Don Drachand to Retire (page 6)
- CARB to Hold Workshop Regarding the Development of Regulations for Voluntary Vehicle Scrappage Programs (page 7)
- CARB Holds RFG Subcommittee Meetings - So Far, So Good Becomes New Catch Phrase for Rollout of Cleaner Burning Gasoline (page 11)
- CARB Issues More Guidance on Compliance with OBD II Requirements (page 18)
- CARB to Hold Workshop Regarding Proposed Revisions to Diesel Fuel Test Methods (page 21)
- Legislative Update - Miscellaneous Tinkering With Air Pollution Statutes Would Occur Under 34 New Bills - Many Bills Address Local Air District Funding and Procedures, EV Incentives, and Diesel Truck Emissions - Two Bills Would Reduce Centralized Testing Under New I/M Program (page 21)
- Rulemaking Calendar Update (page 37)

## February 1996

- CARB and Automakers Negotiating Memorandum Agreements on ZEVs - Draft Agreements Show CARB Accepting 49-State LEV Program as Offset to Current ZEV Mandate (page 2)
- CARB Adopts RFG Variance Procedure Amendments Implementing Requirements of SB 709 - Staff Proposal Adopted with Little Controversy (page 6)
- CARB Conducts Scientific Workshop on Use of Epidemiological Data for Quantitative Cancer Risk Assessments of Diesel Exhaust - Opinions Expressed by Many Researchers Support Listing of Diesel Exhaust as a Toxic Air Contaminant (page 7)
- CARB Staff Presents Board with Status Update Regarding Progress Being Made Toward Compliance with Tier II Standards for Utility Lawn and Garden Equipment Engines - Staff Rebuffed by Chairman for Presenting Overly Rosy Conclusions (page 28)
- CARB Relaxes CO Standard for Utility and Lawn and Garden Equipment Engines - As Justification, Staff Cites Adverse Economic Impacts of Engine Unavailability (page 33)
- CARB Issues MAC Regarding Durability Demonstrations Required for Certifying Alternative Fuel Retrofit Systems (page 35)
- CARB Issues MAC Regarding the Calculation of Mobile Source Emission Reduction Credits - MAC Simply Reiterates Previously Published Procedures (page 36)
- CARB Issues Mail-Out Regarding Proposed List of Preempted Construction and Farm Equipment and Requests Comments on a Protocol for Classifying Additional Equipment (page 37)
- CARB Issues Mail-Out Clarifying Certification Requirements for Utility and Lawn and Garden Engines in Response to Request from the Engine Manufacturers Association (page 38)
- 1996 Legislative Session Resumes (page 38)
- Rulemaking Calendar Update (page 42)

## January 1996

- CARB Holds Series of EV Workshops and Public Meetings, Board Directs Staff to Relax ZEV Mandate - 3,750 Demonstration Vehicles Would Be the Only Required Production Prior to 10% Production Mandate in 2003 and Later Years (page 3)
- CARB Staff Busily Deals with Reformulated Gasoline Issues as Roll-Out Date for California Cleaner Burning Gasoline Fast Approaches
- -CARB Holds Workshop on Proposed Amendments to RFG Regulations to Revise Variance Procedures and Incorporate Housekeeping Changes to Facilitate Downstream Oxygenate Blending (page 16)
- -CARB Adopts Housekeeping Changes to Reformulated Gasoline Regulations (page 22)
- -CARB Issues Hearing Notice and Staff Report for Proposed Changes to the Variance Provisions of CARBs Reformulated Gasoline Regulations (page 24)
- -RFG Advisory Subcommittees Discuss Test Program Results and Report Outline, Review Public Education Materials and Activities - CARB Also Issues Press Kit for Cleaner Burning Gasoline (page 25)
- -CARB Staff Presents Status Update to the Board on the Introduction of Cleaner Burning Gasoline - Staff Downplays the Potential for Problems (page 31)
- CARB Board Acts to Exempt Military Tactical Vehicles from State Emission Standards (page 33)
- CARB Holds Workshop On New Emission Inventory Model - Changes Lead to Much Higher 1990 Inventories and May Have SIP Implications (page 33)
- CARB Staff Releases Limited Test Data Addressing the Impact of Using ORVR in Combination with Stage II Systems (page 45)
- CARB Announces that No Clean Fuel Outlets Will be Required for 1997 (page 45)
- CARB To Consider Petition Requesting a Relaxation of the CO Standard For Utility, Lawn and Garden Engines - Staffs Rationale for Proposing CO Standard Change Sets Interesting Precedent for On-Road Rulemakings (page 46)
- CARB Staff Issues Status Report Which Concludes That Utility Engines Are On Schedule To Meet 1999 Tier II Standards (page 49)
- CARB Issues Guidance on Reporting of Quality-Audit Data for Heavy-Duty Off-Road Diesel Cycle Engines (page 52)
- CARB Announces Scientific Workshop to Debate the Toxicity of Diesel Exhaust (page 53)
- Rulemaking Calendar Update (page 54)



## December 1995

- CARB Holds Workshop on the Costs and Benefits of the ZEV Mandate - Ongoing Discussions With Automakers, However, Cause the Workshop To Be a Non-Event (page 2)
- CARB Hears Informational Report Regarding the Costs and Benefits of the ZEV Mandate - Board Gives Staff Vague Direction to Make Changes to the Mandate and Return to the Board No Later than March (page 11)
- CARB Staff Announces Yet Another Workshop on the ZEV Mandate, To Discuss Form of Possible Modifications to the Mandate - Staff Will Brief the Board on This Workshop at the December Hearing (page 18)
- CARB Adopts Changes to Gasoline Additive Requirements (page 19)
- CARB to Consider Amendments to Phase 2 Reformulated Gasoline Regulations, Including Variance Regulations Required by SB 709 (page 22)
- CARB Presents Revised Credit Guidelines for Off-Road Diesel Engines, Asks for Comments (page 24)
- CARB Issues Guidance on Format for Quality-Audit Reporting by Utility and Lawn & Garden Equipment Engine Manufacturers (page 26)
- CARB Issues MAC for Carry-Over of Utility and Lawn & Garden Engine Certification (page 27)
- Rulemaking Calendar Update (page 28)

## November 1995

- CARB Holds Workshop to Discuss Technological Progress in Development of Zero Emission Vehicles - Staff Told Advanced Batteries Will Not Be Ready Until 2000-2001 at the Earliest (page 2)
- CARB Board Hears an Update Regarding Status of ZEV-Related Workshops and A Preliminary Report from the Battery Technology Assessment Panel (page 19)
- CARB to Hold Final ZEV Workshop Addressing the Costs and Benefits of the ZEV Mandate - Based on Board Member Comments, Changes in 1998 Mandate Are Likely (page 25)
- RFG Advisory Committee and Subcommittees Meet, Debate, and Hammer Out Findings (page 25)
- CARB Updates Test Methods for Phase 2 RFG Properties (page 35)
- CARB Adopts Guidelines for Emission Reduction Credits Through Purchase of New, Reduced-Emission Heavy-Duty Vehicles (page 36)
- Trade Association Holds Informational Meetings for Smog Check Industry on Enhanced I/M (page 40)
- BAR's Proposed Smog Check Regulations No Longer Define Standards Categories By Emission Control Systems (page 41)
- Legislation Update - Governor Signs All Bills (page 44)
- Rulemaking Calendar Update - November 8 LEV/ZEV Workshop To Discuss Benefits and Costs of ZEVs (page 48)

## October 1995

- CARB Chairman John Dunlap Confirmed by State Senate (page 2)
- CARB Announces That Next EV Forum, Addressing Battery Technology, Will Be Held October 11 (page 3)
- CARB Adopts Changes to Non-ZEV Provisions of the LEV Program - New MDV Requirements and Additional RAFs Are Approved by Board (page 3)
- CARB Holds Workshop Regarding the Viability of EVs in Vehicle Fleet Applications - Proceedings Are Little More Than a Rehash of Earlier Workshop on Marketability (page 12)
- CARB Holds Consultation Meeting on RFG Issues - Discussions Indicate Proposed Regulation Changes May Go Well Beyond Housekeeping (page 23)
- Phase 2 RFG Advisory Subcommittees Meet - Reports on Test Programs Provide No New Evidence Suggesting RFG-Related Problems (page 29)
- CARB Staff Presents Board with Update on the Implementation of the Phase 2 Gasoline Regulations - Staff Tells Board that All is Well (page 36)
- CARB Proposes Revisions to Fuel Property Test Methods for Phase 2 Gasoline and Holds Workshop to Discuss This Proposal as well as Proposed Revisions to the Test Methods for Diesel Fuels (page 39)
- CARB to Consider Amendments to the Agency's Gasoline Deposit Control Additive Regulations (page 42)
- BAR Hearing on ASM Emissions Standards Surprises But Doesn't Inform (page 44)
- CARB to Present Additional Guidelines for Mobile Source Credits Programs to Board for Approval - New Guidelines Deal with NOx Credits for Purchases of New Reduced-Emission Heavy-Duty Vehicles (page 47)
- CARB Issues MAC Regarding Design of Fuel Tank Vent Tubes (page 48)
- CARB Announces Workshop to Discuss Utility and Lawn & Garden Engine Quality-Audit Testing (page 49)
- Legislative Update - Legislature Adjourns and Numerous Bills Are Now Awaiting Action by the Governor (page 50)
- Rulemaking Calendar Update (page 56)

## September 1995

- Confirmation of CARB Chairman John Dunlap Appears Assured After "On Again, Off Again" Scheduling in the State Senate (page 2)
- CARB Names Members of Panel To Evaluate the State of EV Battery Technology - Preliminary Results To Be Presented at October 11 EV Workshop in El Monte (page 2)
- CARB Holds Workshop on Proposal To Allow ZEV Credits for HEVs and To Establish Equivalent Zero Emission Standards (EZEVs) - Little Support Is Shown for Staff's Proposal (page 4)
- CARB Staff Issues Proposed Changes to Non-ZEV Provisions of the LEV Program Regulations, Including Revisions to the MDV LEV Program Requirements - Staff's Proposal Differs Little from Earlier Versions Except That the Number of Proposed RAFs Has Been Expanded As Has the Availability of Interim In-Use Compliance Standards for MDVs (page 15)
- Next CARB ZEV Workshop Is Announced - Will Address Issues Regarding Viability of EVs in Vehicle Fleets (page 26)
- Phase 2 RFG Advisory Transition Subcommittee Meets To Further Discuss Supply/Demand Issues - No New Information Is Presented (page 26)
- I/M Review Committee Meets in El Monte, Gets Enhanced I/M Status Report, Hears Report on High-Emitter Driver Characteristics (page 30)
- BAR To Hold Hearing To Consider Final Adoption of Enhanced I/M Regulations (page 38)
- BAR Staff Unveils Stringent Specifications For ASM Test Equipment; Discusses Them With Vendors (page 39)
- Legislation Update - Senate Passes AB 63, Delaying \$450 I/M Repair Cost Ceiling and Authorizing an Economic Hardship Extension (page 42)
- Rulemaking Calendar Update - September 13 LEV/ZEV Workshop To Discuss Fleet Issues (page 50)

## August 1995

- CARB Holds Workshop on Environmental Impacts of Lead-Acid Battery Usage and EV Infrastructure Issues - Heated Debate Regarding ZEV Mandate Continues (page 2)
- CARB Announces Second Workshop Regarding Changes to the LEV Program Regulations That Would Provide ZEV Credits for HEVs and Establish Equivalent ZEV ("EZEV") Emission Standards - Staff's Proposal, However, Appears To Be Unworkable (page 20)
- CARB Adopts Regulatory Amendments To Ease Burdens on Alternative Fuel Retrofitters (page 27)
- CARB Hears Updated Status Report on Air Toxics Control Program (page 34)
- CARB Holds Workshop on Proposed Guidelines for Obtaining Variances from the Agency's Phase 2 Gasoline Regulations - Suggested Noncompliance Penalty Set at 15 per Gallon (page 35)
- Phase 2 RFG Performance and Education Subcommittees Meet - Potential for Fuel-Related Component Failures on Older Vehicles Continues To Be an Issue (page 41)
- CARB Holds Workshop on Gasoline Test Methods To Be Used To Determine Compliance with Phase 2 RFG Regulations (page 50)
- CARB Holds Workshop to Discuss Proposed Changes to Gasoline Deposit Control Additive Regulations - Changes Proposed to Recordkeeping Requirements Appear to be the Most Onerous (page 53)
- CARB Issues Request for Alternative Fuel Vehicle Production Data and Projections to Determine Whether Fuel Providers Must Establish Alternative Fuel Outlets for 1997 - Agency is Already Behind Schedule for Issuing a Preliminary Estimate (page 55)
- Latest Smog Check Data Analysis Shows Little Change Over Past Year (page 56)
- Lack of State Budget Keeps Legislature in Session Throughout July - AB 63, Delaying \$450 I/M Repair Cost Ceiling, Goes to Senate Floor (page 64)
- Rulemaking Calendar Update - August 9 LEV/ZEV Workshop Will Discuss Hybrid Electric Vehicle Issues (page 72)

## July 1995

- BAR Presents Final Draft Design of New I/M Program; Calls for Two-Mode ASM Testing in All Facilities (Test-Only and Test-and-Repair) in Enhanced I/M Areas (page 3)
- I/M Review Committee Discusses "Guiding Principles" for California I/M Program, Including Role of Remote Sensing; Is Cautioned Not To Base Policy Recommendations on Sacramento Remote Sensing Study (page 6)
- CARB Holds Workshop on EV Marketability - Manufacturers and Dealers Tell CARB that EV Sales Volumes Will Be Far Lower Than 2% for 1998, While EV Proponents Claim Large Market Exists for EVs (page 13)
- CARB Announces Third EV "Workshop" - Focus Is Supposed To Be On Infrastructure Development But Recent Carnegie-Mellon Study Regarding Lead Emissions Will Also Be Discussed (page 31)
- CARB Adopts ORVR Regulations - Staff and Board Agree To Address Issues of Concern to Automakers (page 31)
- CARB Adopts Revisions to Certification and Test Procedures for Stage II Vapor Recovery Systems (page 35)
- CARB Aligns State's Heavy-Duty Diesel NOx Standards With EPA's at 4.0 g/bhp-hr; Adopts Optional HDD NOx Standards for Mobile Source Credit Programs (page 37)
- CARB Adopts New Test Method for Determining Gasoline Oxygenate Content in Response to Request from Petroleum Industry (page 41)
- CARB Adopts Formula for Computing Emission Reductions from Employer-Based Trip Reduction Rules - Formula Sets Emission Targets for Alternative Programs (page 42)
- CARB Issues "Guidelines" for Compliance with OBD II Requirements - Staff Dictates Minutia of OBD II System Design (page 44)
- Phase 2 Reformulated Gasoline Advisory Committee Meets - No Significant Issues Raised (page 52)
- Phase 2 RFG Variance Hearing for Pacific Refining Company Is Canceled at the Company's Request (page 59)
- CARB Staff Proposes Retrofit Emission Standards for Heavy-Duty Vehicles That Would Allow the Generation of Emission Credits and Changes to the Certification Requirements for Alternative-Fuel Conversion Kits (page 59)
- CARB Approves Staff Report on Use Of Motor Vehicle Registration Fees; APCOs Caution Against Rigid Guidelines and Excessive Reporting Requirements (page 62)

July 1995, continued

- CARB Approves 1995 Air Pollution Research Plans - Agency to Spend \$500,000 on EV Battery and Infrastructure Projects During Fiscal Year 1995-1996 (page 67)
- CARB Approves Four Innovative Clean Air Technologies Research Proposals, Two Related to Mobile Sources (page 68)
- CARB Holds More Workshops Regarding 1999 Emission Standards for Utility and Lawn and Garden Engines - Staff Seeks Additional Information for Status Report (page 70)
- Little Legislative Activity in June - Bills Proposing Tax Incentives for Low-Emission Vehicles and EVs Now on Hold (page 71)
- Rulemaking Calendar Update - July 12 LEV/ZEV Workshop To Discuss Electric Vehicle Infrastructure; July Board Hearing Will Address Items Related to Certification of Alternative Fuel and Heavy-Duty Retrofits (page 79)

## June 1995

- I/M Review Committee Finalizes Recommendations For California I/M Program; Calls For RG240 Testing in Enhanced Areas (page 3)
- CARB Hears Status Report on the State Implementation Plan and Federal Implementation Plan (page 11)
- CARB Holds Workshop to Discuss Possibility of Providing ZEV Credits to HEVs - Workshop Turns into Forum on ZEV Mandate (page 14)
- CARB Holds Workshop on Changes To Non-ZEV Portions of LEV Program Regulations - Staff Proposal Includes Major Changes to Medium-Duty Standards and RAFs for CNG and LPG (page 25)
- CARB Announces Public Forum to Discuss "Consumer Marketability" of ZEVs - Meeting to Exclude Discussion of Readiness of EVs to Meet Consumer Demands and the Impact of EV Cost on Marketability (page 37)
- CARB Proposes, with Minor Modifications, Adoption of EPA On-Board Refueling Vapor Recovery (ORVR) Standards for 1998 and Subsequent Model Year Light- and Medium-Duty Vehicles (page 38)
- CARB Staff Proposes Modifications to Certification and Test Procedures for Stage II Vapor Recovery Systems - Final Proposal Reflects Only Minor Changes to Version Presented at February Workshop (page 42)
- CARB Proposes Changes to Exhaust Emission Standards for Heavy-Duty Engines and Vehicles - Action Will Align CARB and Federal NOx Standards and Provide Opportunity to Generate Mobile Source Credits (page 43)
- CARB Hosts Phase 2 Reformulated Gasoline Advisory Subcommittee Meetings - Possibility that Materials Compatibility Problems May Exist for Older Vehicles is Discussed (page 47)
- CARB Proposes a Change to the Test Method for Determining the Oxygenate Content of Gasoline (page 56)
- CARB Receives First Application for a Variance from the Phase 2 RFG Regulations - Pacific Refining Company Cites Delays in Obtaining Permits Due to Opposition from Local Residents as a Key Factor (page 58)
- CARB Holds Workshop and Releases Staff Report on Computing Emission Reductions for Employer-Based Trip Reductions (page 59)
- CARB Issues Cost Limit for High-Priced Warranted Parts (page 62)
- CARB Issues Production Information for Determining Cert Fees (page 63)



June 1995, continued

- CARB Approves Alternate Emission Standard for All-Terrain Vehicles (page 63)
- Legislation Update - Four Bills Proposing Tax Incentives for LEVs/ZEVs Are Set for Hearing in Fiscal Committees (page 64)
- Rulemaking Calendar Update - June 28 LEV/ZEV Workshop To Discuss Electric Vehicle Marketing; June Board Hearing Agenda Includes Four Vehicle-Related Items (page 76)

## May 1995

- Frenzy of I/M Related Activity Continues:
  - I/M Review Committee March 31 Meeting - Full Report (page 2)
  - I/M Review Committee Hears Contractor's Report on Analysis of Data from El Monte and Sacramento Pilot Projects; Discusses Recommendations on I/M Program Design (page 9)
  - I/M Review Committee Holds Workshop to Address I/M Issues - Different Forum, Same Messages (page 17)
  - I/M Review Committee Considers Recommendations For California I/M Program; Meeting Reconvenes In Long Beach On May 3 (page 23)
- CARB Announces Workshop Series Regarding the LEV Program Regulations and ZEV Mandate - Review of Key Issues Promised (page 34)
- CARB Will Hold Workshop Regarding Changes to the LEV Program Regulations - Staff Proposes to Provide Limited ZEV Credits for HEVs (page 36)
- Federal Legislation Rescinding FIP is Signed by President (page 38)
- CARB Holds Workshop on Fuel Properties Test Methods - Proposed Revisions are Non-Controversial (page 39)
- CARB MAC 95-04 Appears To Go Beyond Legislative Intent Regarding Emissions-Related Service Information Provided By OEMs To Independent Service Industry (page 42)
- CARB Issues MAC "Streamlining" Certification Procedures for Alternative Fuel Retrofit Kits - Agency Gives in to Pressure from the Alternative Fuel Industry (page 44)
- CARB and OEHHA Continue to Work to Identify Diesel Exhaust as a Toxic Air Contaminant - Revised Draft Report and Workshop Expected to be Released in the Fall (page 48)
- CARB Board Hears Status Report on Innovative Clean Air Technology (ICAT) Program - (page 48)
- Legislation Update - Several Bills Are Amended and Pass Their Policy Committees, But AB 712 Requiring Study of CARB's ZEV Mandate is Held Over (page 51)
- Rulemaking Calendar Update - June Board Hearing Moved to June 29; July Hearing Will Be Held July 27; LEV/ZEV Workshops Added To Calendar (page 63)

## April 1995

- I/M Review Committee Holds Monthly Meeting - Continues Marching Toward Affirmation of Misconceptions Held by Committee Members and Staff (page 3)
- Sierra Analysis of I/M Pilot Program Data Shows that Remote Sensing is Ineffective in Identifying Vehicles with High Emissions (page 10)
- I/M Review Committee Holds Monthly Meeting on March 31 - Hears Report on Congressional Hearing; Consultants Defend Critique of 50% Discount and Report on Data Analysis (page 16)
- I/M Review Committee To Host Workshop on Designing and Evaluating I/M Programs; Panelists Include Few With Real Knowledge of the Subject (page 21)
- CARB-Sponsored Phase 2 Reformulated Gasoline Advisory Subcommittees Meet - MTBE Controversy Identified as a Potential Threat to Smooth Implementation of Phase 2 Regulations (page 22)
- CARB Holds Workshop on Credits for Low-Emission, Off-Road Diesel Engines (page 31)
- CARB to Hold Workshops Regarding 1999 Emission Standards for Utility and Lawn and Garden Engines - Information Obtained by Staff Will Be Used to Prepare a Status Report to the Board (page 35)
- CARB Issues "Fact Sheet" Regarding Illegal Alternative Fuel Conversions - CARB Warns Fleet Operators Not to Accept or to Perform Uncertified Conversions (page 35)
- Legislation Update - Two Bills Related to CARB's ZEV Mandate (AB 260 and AB 339) Already Put On Hold (page 36)
- Rulemaking Calendar Update - Many Changes from Published Draft (page 45)

## March 1995

- Board Hears Status Report on Refiners' Progress In Complying With Phase 2 RFG Regulations - Refiners Are On Schedule To Meet March 1996 Compliance Date, Phase 2 RFG Advisory Committee Reports On Testing and Public Education (page 3)
- Board Hears Reports on SIP Status, Local Smoking Vehicle Programs, and Uses of the Motor Vehicle Registration Fees Levied By APCDs (page 6)
- Loss of Business for Automotive Aftermarket Parts Industry Projected at OBD II Workshop - CARB Staff Says Automakers May Be Required to Provide Spare Parts for 20 Years (page 9)
- I/M Review Committee Hears Presentation from EPA on I/M Performance Standard and Emission Reduction Discount for Decentralized Programs (page 14)
- EPA Promulgates California FIP with Final Federal Rules for Several Mobile Source Control Measures Contained in CARB SIP - Impact on Proposed CARB Regulations Unclear (page 20)
- CARB Holds Another Workshop On Its Proposed Changes to the Stage II Certification Test Procedures - Agency Drops Requirement for Fugitive Emissions Testing But Does Not Address the Significant Differences That Exist Between the Proposed Test Procedures for Stage II and On-Board Refueling Vapor Recovery Systems (page 26)
- CARB Holds Informal Meetings Regarding Establishment of Off-Cycle ("Bag 4") Standards for LEV Program Vehicles and Harmonization of CARB and EPA Evaporative Test Procedures (page 30)
- Fuel Suppliers Report Problems with Meeting Commercial Fuel Specifications for CNG at CARB Workshop - CARB Staff Says It Won't Take Enforcement Action (page 31)
- CARB Holds Meeting to Discuss Effects of Oxygenated Gasoline on NO<sub>x</sub> Emissions in Response to Ethanol Industry Push to Raise California Fuel Oxygen Cap - SAI Analysis Supporting Ethanol Industry Is Criticized (page 36)
- CARB Holds Workshop on Draft Emissions Formula for Calculating Employer-Based Trip Reductions (page 38)
- CARB Announces Workshop Regarding the Generation of Mobile Source Emission Reduction Credits from the Replacement of Existing Off-Road Diesel Engines with Low-Emission Engines (page 43)
- CARB Announces Plans to Perform In-Use Emissions Testing On Motorcycles (page 44)

March 1995, continued

- New Legislation Addresses Electric and Alternative-Fuel Vehicles - New Funding and Incentives Proposed As Well As Bills to Restrict Such Funding and Repeal CARB's ZEV Mandate (page 44)
- CARB Publishes 1995 Rulemaking Calendar - Schedule Includes Heavy-Duty Engine Standards and Regulations on Aftermarket Parts for LEVs with OBD II (page 55)

## February 1995

- Governor Appoints Two New Board Members - Neither Appears to Have Significant Experience with Air Quality Issues (page 2)
- CARB Issues 15-Day Notice Regarding Revisions to OBD II Regulations - Staff Makes Only Minimal Changes in Response to Board Direction and Clearly Incorporates Reactivity-Based NMOG Standards (page 3)
- CARB to Hold Workshop Regarding Impact of OBD II Regulations on Aftermarket Industry - Staff Appears to be Under Considerable Pressure to Resolve Aftermarket Industry Concerns (page 5)
- I/M Review Committee Gets Broad-Brush Report on Data Analysis, Hears Discussion of Loaded-Mode Repair Shop Issues, Gets Input from Mechanics on Smog Check Program and Loaded Mode Testing (page 11)
- CARB Holds Informal Meeting with Industry to Discuss Easing Certification Requirements for Alternative Fuel Retrofit Systems - Objections to Current Regs Voiced by Natural Gas Proponents (page 16)
- CARB Announces Another Workshop on Long-Delayed Certification Test Procedures for Stage II Vapor Recovery Systems (page 21)
- CARB Issues Mail-Out Regarding Manufacturer Reporting Requirements Relative to CARB's Fleet Average NMOG Standards (page 21)
- CARB to Hold Workshop Regarding CNG Fuel Specifications (page 22)
- CARB Finalizes Guidelines for Reimbursing Diesel Owners for Damage Resulting from Low-Aromatic, Low-Sulfur Diesel Fuel (page 22)
- Annual Air Quality Trends Update - Most Vehicle-Related Peak Pollution Levels Continue Gradual Downward Trends (page 23)
- Legislation Update (page 38)
- Rulemaking Calendar (page 39)

## January 1995

- Governor Appoints John Dunlap to Replace Jackee Schafer as CARB Chair (page 2)
- CARB Adopts Changes to OBD II Regulations - Confused Debate Causes Board Direction Regarding Changes to Staff's Proposal to Remain Unclear (page 2)
- I/M Review Committee Discusses Pilot Program Data Analysis, EPA Policy on Discounting Effectiveness of After-Repair Testing in Private Garages (page 16)
- CARB Adopts Changes to M100 Fuel Specifications Requiring that All M100 Vehicles Be Equipped with Fire Suppression Systems - Board Also Directs Staff to Review the Need for M100 Flame Luminosity Requirements (page 21)
- CARB Delays Implementation of Periodic Smoke Program for Heavy-Duty Diesel Vehicles - However, Board Directs Staff to Develop Its Own Test Procedure if Additional Delays Occur in the Development of the SAE Recommended Procedure (J1667) for Smoke Testing (page 24)
- CARB Holds Workshop to Discuss the Development of Guidelines for Economic Analyses of Alternative Regulatory Proposals Put Forth by Interested Parties (page 29)
- CARB Will Not Require "Clean Fuel" Outlets in Southern California in 1996 (page 34)
- Early 1995 Legislation Addresses I/M Repair Cost Limits and Economic Analyses of CARB Regulations (page 35)
- Rulemaking Calendar (page 37)

## **December 1994**

- CARB Chairwoman Jackee Schafer Resigns Five Days Before the Anniversary of Her Appointment as Part of Wilson Administration Strategy to Reappoint Her as CARB Chair Before End of Year - Senate Must Agree to Confirm Reappointment Within Five Days (page 2)
- CARB Adopts Revised SIP - Light- and Heavy-Duty Vehicle Scrappage Measures Substituted for 0.026 g/mi Fleet Average NMOG Standard and 1 g/bhp-hr Heavy-Duty NOx Standard - More Aggressive Standards for Light-Duty Vehicles to Be Considered Later (page 3)
- I/M Review Committee Hears Report on Pilot Programs, Begins Discussing Evaluation (page 29)
- CARB Releases Preliminary Finding that "Clean Fuel" Outlets Will Not Be Required in Southern California in 1996 (page 35)
- CARB Issues Draft Administrative Guidelines and Claim Forms for a Program to Reimburse Owners of Diesel Vehicles for Damage Due to CARB's Low-Aromatic, Low-Sulfur Diesel Fuel Regulations (page 35)
- Rulemaking Calendar (page 36)



## **November 1994**

- CARB Issues Draft SIP - Governor Calls for Independent Analysis Regarding the Economic Impact (page 2)
- Ozone SIP Workshop Ends with Indications that CARB Will Give Vehicle Scrappage Programs a Prominent Place in the SIP; Would Substitute for Technology-Forcing New Vehicle Standards (page 8)
- CARB Staff Proposes More Revisions to OBD Regulations - Technical Feasibility of New Catalyst Monitoring Requirements is Questionable (page 19)
- I/M Review Committee Hears Reports on Test Procedure Evaluation and Remote Sensing Pilot Programs, BAR Mechanic Licensing Examination (page 23)
- CARB Adopts Report to the Legislature Saying That Mandatory Retrofit of Existing Diesels is Not Feasible (page 26)
- CARB Staff Proposes Delay in the Implementation of Periodic Smoke Inspection Program for Diesel Vehicles Because of Continued Problems with the Snap-Idle Test Procedure (page 32)
- CARB Staff Proposes Minor Changes to the Certification and Commercial Fuel Specifications for Neat Methanol Fuels (page 34)
- Rulemaking Calendar (page 35)

## October 1994

- CARB Staff Presents Status Report on Ozone SIP Development - Effort Continues to Avoid Federal Implementation Plan (page 2)
- CARB Holds Series of Workshops Regarding Proposed SIP Measures Focused on Mobile Sources:
  - On-Road Heavy-Duty Diesels (page 6)
  - Off-Road Diesels (page 10)
  - Gasoline and LPG Off-Road Sources (page 12)
  - Locomotives and Marine Vessels (page 14)
  - Light- and Medium-Duty Vehicles (page 22)
- I/M Review Committee Hears Status Reports on Pilot Programs; Announces Hiring of Technical Consultant and Staff Assistant (page 35)
- CARB Holds Workshop on Toxicity of Diesel Exhaust - Draft Report Claims Diesels Cause Cancer in Up to One of Every 100 Californians; Mercedes Representatives Dispute Report Findings (page 39)
- CARB Adopts Tighter Specifications for Certification Test Fuels (page 47)
- Legislation Update - Governor Vetoes AB 2247 and AB 3817, Citing Concerns Over Imposition of Additional Fees, But Signs Remaining Bills (page 50)
- Rulemaking Calendar (page 54)

## **September 1994**

- California Senate Fails to Confirm Appointment of CARB Chairwoman Jackie Schafer Before Recessing Until December - Schafer Must Resign Position by Mid-November (page 1)
- Air Resources Board Holds Final Symposium on Market Incentives and Other Innovative Controls, Covering Advanced Automotive Technologies as a Prelude to SIP Workshops (page 3)
- CARB Staff Proposes Changes to Low-Sulfur, Low-Aromatic Diesel and CNG Certification Fuel Specifications and Commercial Specifications for LPG (page 12)
- CARB Mail-Out Requests Data on Production Plans for Alternative-Fuel Vehicles (page 16)
- Legislation Update (page 16)
- Rulemaking Calendar (page 22)

## August 1994

- CARB Holds Workshop Regarding Proposed Changes to OBD II Regulations - Staff Proposes Yet Another Set of Revised and More Complex Monitoring Requirements to Amend the Five-Year Old Regulations (page 2)
- I/M Review Committee Meets Again - Committee Reveals Lack of Focus While Mechanics Complain about New BAR Tests (page 14)
- CARB to Allow Small Refiners To Increase Production Of 20% Aromatics Diesel Fuel - Board Finds that the Need to Avoid Economic Hardship Outweighs Adverse Air Quality Impacts Despite Strong Opposition from Large Refiners (page 18)
- CARB Adopts Amendments to Utility and Lawn and Garden Regulations (page 28)
- CARB Holds Symposium on "Market Incentives and Other Innovative Controls" (page 32)
- CEC Hears Draft Report on Alternative Fuel Infrastructure - Preferential Treatment for Non-Petroleum Fuels Opposed by Oil Industry (page 42)
- Legislation Update (page 47)
- Rulemaking Calendar (page 52)

## July 1994

- CARB Board Hears a Status Report Regarding Phase 2 Gasoline and Adopts Predictive Model for Certifying Alternative Phase 2 Gasoline Formulations (page 2)
- CARB Flip-Flops on ORVR; Staff Now Proposes to Adopt EPA Regulations and Test Regulations - CARB Proposes Modifying Stage II Systems to Make Them ORVR Compatible (page 11)
- CARB Announces Workshop Regarding More Proposed Modifications to the OBD II Regulations Five Years After Their Original Adoption (page 17)
- New I/M Review Committee Holds First Meeting - Committee Focuses on Pilot/Demonstration Program for New California I/M Program (page 21)
- CARB Holds Briefing on Proposed Identification of Diesel Exhaust as Toxic Air Contaminant (page 27)
- CARB Board to Consider Modifications to Diesel Fuel Regs to Aid Small-Volume Refiners (page 30)
- CARB Workshop on Assembly-Line Test Procedure Variations Generates Little Interest (page 32)
- CARB to Consider Amendments to Lawn and Garden Regulations (page 34)
- Legislation Update (page 35)
- Rulemaking Calendar (page 40)

## June 1994

- As Expected, Board Agrees to Keep LEV/ZEV Regulations on Schedule, But Agrees to Consider Review of ZEV Mandate Prior to 1996 if New Information Becomes Available (page 2)
- CARB Holds Workshop Regarding Certification Test Fuels - Relaxation of CNG and LNG Specifications and Tightening of Diesel Specifications Under Consideration (page 17)
- CARB to Consider Adoption of a Predictive Model for Certifying Alternative Phase 2 Gasoline Formulations at June Hearing - Staff, However, Continues to Work on Refinements (page 22)
- CARB to Issue "Conditional" Executive Orders for Utility Engines Tested on Phase 2 Gasoline Prior to Board Approval of Regulation Change (page 26)
- CARB Issues Production Volume Data for Use in Calculating Certification Fees (page 27)
- Legislation Update (page 27)
- Rulemaking Calendar (page 33)

## May 1994

- CARB Issues Staff Report for LEV/ZEV Review - Staff Recommends No Changes to LEV Program - Staff Claims Cost of Meeting 0.075 NMOG Standard Will Be Only \$114 and Cost Increase for Electric Vehicles Will Be Zero by 2001-2003 (page 1)
- CARB Holds Workshop Regarding Possible Modifications to Diesel Fuel Regs to Aid Small Refiners (page 7)
- CARB Announces Board Hearing to Consider Adoption of the Long-Delayed Predictive Model for Phase 2 Gasoline and Other Minor Changes to the Phase 2 Regulations (page 11)
- Legislation Update (page 12)
- Rulemaking Calendar (page 19)

## April 1994

- CARB Holds Workshop Regarding LEVs and ZEV Mandate - Automakers Indicate that ZEVs Using Advanced Technology Batteries Will Not Be Ready by 1998 (page 2)
- Assembly Transportation Committee Opposes Delay of Zero-Emission Vehicle Mandate - AB 2495 Rejected on 7:2 Vote (page 17)
- New I/M Legislation Focused on Gross Emitters Heads Off Confrontation with EPA (page 18)
- CARB Holds Workshop on Plans Regarding Onboard Refueling Vapor Recovery (ORVR) - Staff Indicates that Regulations Prohibiting ORVR Systems on California Vehicles Will Be Proposed (page 20)
- CARB Holds Workshop on Fugitive Emissions from Stage II Vapor Recovery Systems - Agency is in a Quandary as to How to Incorporate Fugitive Emissions Testing into its Certification Test Procedures (page 25)
- CARB Releases Preliminary Report on New Reactivity Adjustment Factors (page 29)
- Four Major Oil Companies File Lawsuit Against CARB on Tosco Variance (page 30)
- CARB Reports on Refiners' Progress in Meeting Phase 2 Gas Requirements (page 30)
- Informational Mail-Outs Issued by CARB (page 31)
- Analysis of Latest Smog Check Data Indicates Continued Gradual Improvement (page 32)
- Legislation Update (page 38)
- Rulemaking Calendar (page 44)



## March 1994

- Study Shows that the California LEV Program Is Not Cost Effective Outside of California and that ZEVs Cannot Be Justified as Cost Effective Anywhere in the U.S. (page 2)
- California Assembly Transportation Committee Holds Informational Hearing Regarding CARB's Reformulated Gasoline and Zero-Emission Vehicle Regulations - Assemblyman Katz Provides a Friendly Forum for Pro-ZEV Interests (page 10)
- CARB Adopts Amendments to Evaporative Emissions Standards and Test Procedures - Board Acts to Minimize Differences in CARB and EPA Procedures (page 19)
- CARB to Hold Workshop on Plans Regarding Onboard Refueling Vapor Recovery (ORVR) - Staff Indicates that It Is Considering Prohibiting ORVR Systems on California Vehicles (page 22)
- CARB Holds Workshop Regarding Predictive Model for Phase 2 Gasoline Certification, Issues Preliminary Supply Estimates, and Requests Information Regarding the Potential for Engine Problems with Phase 2 Gas (page 23)
- CARB Grants Tosco Variance on Diesel Fuel - No New Lawsuits Filed Against CARB...Yet (page 32)
- CARB Holds Workshop on Mobile Source Emission Reduction Credits for Heavy-Duty Vehicles and Engines (page 34)
- CARB Holds Workshop Regarding Emission Controls for Locomotives (page 35)
- CARB Holds Workshop on Off-Road Construction and Farm Equipment Protocol (page 42)
- CARB Plans Amendments to Lawn and Garden Regulations (page 45)
- Legislative Update - (page 46)
- Rulemaking Calendar (page 51)

## February 1994

- New CARB Appointments Add Balance to Board as Former GM Employee Joe Calhoun Replaces Andrew Wortman - Two Other New Appointments Bring Size of Board to Eleven Members (page 2)
- Governor Signs Decentralized I/M Bill, But Negotiations Continue with EPA (page 4)
- New CARB Board Member Lynne Edgerton Resigns from Calstart and Comes Out Swinging in Favor of Electric Vehicles (page 5)
- CARB Adopts Regulations for Off-Road Recreational Vehicles - Regs Include Zero-Emission Golf Cart Mandate (page 7)
- Bill to Delay CARB ZEV Mandate is Introduced (page 16)
- CARB Holds Hearing to Consider Tosco Variance Request - Agency Has Yet to Take Action (page 16)
- ARCO Files Suit Against CARB for Improper Enforcement of the Low-Aromatic Diesel Fuel Regulations (page 22)
- CARB Finalizes Guidance Document Regarding the Refiner's Plans for Compliance with the Phase 2 Gasoline Regulations (page 24)
- CARB to Hold Workshop Regarding Predictive Model for Phase 2 Gasoline Certification (page 25)
- CARB Announces Fuel Suppliers Will Not Be Required to Install "Clean-Fuel" Outlets in Southern California for 1995 (page 26)
- CARB Holds Workshop on Proposed EMFAC Enhancements (page 26)
- CARB to Hold Workshop Regarding Definition of Construction and Farm Equipment for Non-Road Regulations (page 30)
- Legislative Update - (page 31)
- Rulemaking Calendar (page 34)

## **January 1994**

- Behind the Scenes, New CARB Chair Reviews Programs - I/M Stalemate Continues Between EPA and State (page 1)
- CARB Holds Workshop Regarding Collection of Phase 2 Reformulated Gasoline Production Plans - Agency Seeks to Avoid Repeat of Diesel Fuel Debacle (page 6)
- CARB Schedules Diesel Fuel Variance Hearing for Tosco (page 11)
- CARB to Hold Workshop Regarding Mobile Source Credit Programs for Low-Emission Heavy-Duty Vehicles (page 13)
- CARB Delays Board Consideration of a Report to the Legislature on the Status of the Locomotive Rulemaking - Workshop Scheduled for February (page 14)
- Rulemaking Calendar (page 14)

## December 1993

- CARB Chairwoman Sharpless Resigns as the Result of a "Mutual Agreement" with Governor Wilson - Jacqueline Schafer, a Former EPA Regional Administrator and Assistant Secretary of the Navy, is Named to Replace Sharpless (page 2)
- CARB Adopts Guidelines Allowing the Generation of Mobile Source Emission Reduction Credits from Emission Control System Retrofits and Conversions Allowing Vehicles to Operate on Alternative Fuels (page 3)
- CARB to Hold Public Workshop to Discuss Oil Industry Plans for Complying with the Phase 2 Gasoline Regulations - Agency Appears to be Attempting to Head Off a Repeat of the Recent Diesel Fuel Crisis (page 7)
- CARB Holds Workshop Regarding Possible ORVR Regulations (page 8)
- CARB Holds Workshop on Proposed Changes to Certification Procedures for Stage II Vapor Recovery Systems - Consortium of Stage II Vendors Proposes All-New "SHED" Test (page 10)
- Interagency "Diesel Fuel Advisory Committee" Submits Report to Governor Wilson Recommending No Changes to CARB's Diesel Regs, But Indicating that Additional Study of Engine Problems is Warranted - Wilson Announces that CARB Diesel Regs Will Remain in Place (page 12)
- CARB Staff Presents Status Report Regarding Diesel Fuel to Board (page 13)
- CARB Grants Chevron Request Regarding Its Diesel Fuel Variance (page 16)
- CARB Delays Board Hearing To Consider Approval of a Report to the Legislature Regarding the Reduction of Emissions from Railroad Locomotives Until January (page 19)
- CARB to Hold Public Hearing to Consider Emission Regulations for Off-Highway Recreational Vehicles and Engines - Electric Golf Cart Mandate Proposed for 1997 (page 19)
- CARB to Hold Workshops Regarding Status of Utility and Lawn and Garden Engine Regulations (page 20)
- Rulemaking Calendar (page 20)

## November 1993

- Change in CARB Membership Rumored (page 2)
- Diesel Fuel Price Increase Puts Pressure on CARB to Repeal 10% Aromatic Limit - 45-Day Suspension of Requirements for Off-Road Users Follows All-Day Hearing (page 2)
- CARB Releases Proposed Changes to Evaporative Test Procedures - Some Differences Still Exist Between CARB and EPA Procedures (page 15)
- CARB to Hold Workshop Regarding Possible Requirements for Onboard Refueling Vapor Recovery (ORVR) Systems (page 16)
- CARB to Consider Guidelines for Mobile Source Credits Program Based on Conversion to Alternative Fuels and Emission Control System Retrofits (page 18)
- CARB to Hold Public Meeting to Consider a Report to the Legislature Regarding Emission Controls for Railroad Locomotives (page 20)
- CARB-Sponsored Technical Conference Focuses on Off-Cycle Emissions, New Driving Cycles, and Remote Sensing (page 22)
- Legislation Update (page 27)
- Rulemaking Calendar (page 29)

## October 1993

- Legislative Session Ends Without Action on I/M as EPA Softens Position on Threatened Sanctions (page 1)
- CARB Adopts Minor Changes to Gasoline Regulations and New Exemption Procedures for Fuels Used in Testing Programs (page 4)
- CARB Holds Workshop Regarding Retrofit Emission Regulations for Heavy-Duty Diesel Vehicles - Agency Decides to Pursue Credits Program Rather than Regulations (page 9)
- CARB Staff Holds Hearing to Consider Another Application for Variance from Its Diesel Fuel Regulations - Staff Recommends Rejection of Variance for San Joaquin Refining Company (page 12)
- Annual Air Quality Trends Update - Most Vehicle-Related Peak Pollution Levels Continue Gradual Downward Trends (page 15)
- Legislation Update (page 32)
- Rulemaking Calendar (page 35)

## September 1993

- Centralized I/M Bill Separating Tests and Repairs Defeated in Senate Transportation Committee - Bill Adding Dyno Testing to Existing Decentralized I/M Program Passes with Supporting Testimony from CARB Chairwoman Jananne Sharpless - EPA Says Sanctions Definitely Will Be Applied (page 1)
- CARB Staff Presents Status Report Regarding Development of New Emission Standards for Heavy-Duty Engines to Board - Staff is Directed to Focus on Economic Incentives and Negotiating Lower Federal Standards (page 7)
- CARB Issues Diesel Fuel Variances to Chevron, Ultramar, and Unocal, and Announces that Adequate Supplies of Diesel Will Be Available on October 1 (page 14)
- Legislative Update (page 20)
- Rulemaking Calendar (page 26)

## **August 1993**

- CARB Grants Ford's Petition Requesting Limited Relief from CARB's OBD II Regulations (page 2)
- CARB Staff to Present Status Report Regarding the Development of New Emission Standards for Heavy-Duty Engines to the Board in August (page 9)
- CARB Staff Proposes Minor Changes to Gasoline Regulations and New Exemption Procedures for Fuels Used in Testing Programs (page 13)
- CARB Holds Workshop on Guidelines for Generating Mobile Source Emission Credits Through Alternative-Fuel Retrofits (page 15)
- CARB Holds Hearings On Diesel Fuel Variances for Chevron, Ultramar, and Unocal - Variances are Opposed by Tosco and Arco (page 21)
- CARB Wins Court Case Regarding Diesel Smoke Program, but Truckers File a Second Suit and Legislation Advances That Would Require Changes to the Program Advances (page 34)
- CARB Issues Revised Regulatory Proposal for Off-Road Recreational Vehicles - Will Hold Individual Workshops with Manufacturers (page 35)
- CARB Issues Preliminary Notification that Retail Outlets for Alternative Fuels Will Not Be Required for 1995 (page 36)
- CARB Budget Survives Threatened Cuts (page 37)
- Legislative Update (page 37)
- Rulemaking Calendar (page 41)



## July 1993

- CARB Adopts New Emission Standards for Heavy-Duty Diesel Engines Used in Urban Buses (page 1)
- Assembly Transportation Committee Holds Televised Hearing on I/M - Stalemate Continues Between EPA, I/M Review Committee and Smog Check Station Owners (page 9)
- CARB Announces Workshop Regarding Guidance for the Generation of Mobile Source Emission Credits through Alternative-Fuel Retrofits (page 12)
- CARB Holds Workshop to Discuss Latest Version of EMFAC Emissions Model (page 16)
- Continued Gradual Improvement Seen in Latest Smog Check Data (page 21)
- CARB Holds Workshop on Guidance Document for Transportation Control Measures (page 27)
- Legislation Update (page 33)
- Rulemaking Calendar Update (page 39)

## June 1993

- CARB Proposes Amendments to OBD II Regulations - Exemptions for Certain Requirements Would be Permitted in Exchange for Cash (page 2)
- CARB Proposes Changes to Evaporative Emissions Test Procedures in Attempt to Align with EPA (page 5)
- CARB Requests Comments Regarding Changes to Bench Testing Requirements for Evaporative Emissions Control Systems Which Would Require Bench Testing of Engines (page 8)
- Senate Panel Holds Over Enhanced I/M Bills (page 10)
- CARB Holds Workshop Regarding Low-Aromatic Diesel Fuel Regulations and Proposed Noncompliance Penalty Program (page 18)
- CARB Issues Draft Test Procedures for Vapor Recovery Systems (page 27)
- CARB Issues Request for Data to be Used in Developing Final Reactivity Adjustment Factors for 1998 and Subsequent Model-Year Vehicles (page 27)
- CARB Issues MAC on Defects Reporting Requirements (page 28)
- CARB Issues MAC Setting Definition of Parts Covered by Seven-Year Warranty for the 1994 Model Year - Parts Costing \$360 or More to Replace Will Now be Covered (page 29)
- Senate Proposes \$38.3 Million Cut to CARB Budget (page 29)
- Legislation Update (page 29)
- Rulemaking Calendar Update (page 37)

## May 1993

- CARB Proposes 4.0 gram NOx and 0.05 gram Particulate Standards for Urban Bus Engines (page 1)
- CARB Issues Detailed Proposal for Diesel Fuel Non-Compliance Penalty Program in Advance of Workshop as Compliance Date for Reformulated Diesel Fuel Approaches - Penalties of 6-8/gallon Proposed for Non-Complying Fuel (page 5)
- CARB Holds Workshop Regarding Process for Demonstrating Equivalency of NMOG Test Procedures (page 8)
- CARB Holds Public Meeting to Discuss Last Winter's Oxygenated Gasoline Program - 8%-10% Reduction in CO Emissions Claimed Based on Preliminary Data (page 10)
- California Energy Commission Issues Report on Oxygenate Supply and Demand (page 13)
- CARB Workshop on Stage II Vapor Recovery System Test Procedures Raises Concern Over Fugitive Emissions (page 14)
- CARB Board Approves One-Year Delay in Implementation of Utility and Lawn and Garden Regulations (page 17)
- Legislation Update (page 20)
- Rulemaking Calendar Update (page 27)

## April 1993

- CARB Steps Up Efforts to Develop Revised Light-Duty Vehicle Test Procedure - Preliminary Test Results for Cycle Representing Current L.A. Driving Shows Big Increase in CO and NOx Emissions (page 1)
- Assembly Transportation Committee Holds Hearing on Proposed Changes to California's I/M Program (page 4)
- Electric Vehicles Promoted at Legislative Hearing - Economic as well as Environmental Benefits Are Stressed (page 8)
- CARB Announces Another Workshop Regarding Possible Supply Shortage of "Reformulated" Diesel Fuel (page 11)
- CARB Issues Draft Regulatory Proposal for Off-Road Recreational Vehicles - Regs Focus on Zero-Emission Golf Carts (page 12)
- CARB Issues MAC Regarding Assembly-Line Testing of California Vehicles Sold in Other States Pursuant to Section 177 of the Clean Air Act (page 13)
- Legislation Update (page 13)
- Rulemaking Calendar Update (page 23)

## **March 1993**

- Senate Committee Negative to Enhanced Inspection and Maintenance Proposal (page 1)
- CARB Board Endorses Guidance Document for Mobile Source Credit Programs (page 9)
- CARB Proposes to Delay Implementation of Utility and Lawn and Garden Regulations Until 1995 (page 19)
- Legislation Update (page 20)
- Rulemaking Calendar Update (page 23)

## February 1993

- CARB Adopts RAFs for Phase 2 Gasoline (page 1)
- I/M Review Committee Releases Revised Summary of Its Report to the Legislature - Committee Continues to Recommend "Hybrid" I/M Program Despite EPA Objections (page 12)
- CARB Holds Workshop to Discuss Non-Compliance Penalty Program to Address Potential Supply Shortfalls of Low-Aromatic Diesel Fuel (page 20)
- CARB Releases Draft Guidance to Districts Regarding Mobile Source Credits Programs (page 30)
- Legislation Update (page 31)
- Rulemaking Calendar Update (page 32)

## January 1993

- CARB Releases Further Revisions to Phase 2 Reactivity Adjustment Factors Based on Results of Airshed Modeling (page 1)
- I/M Review Committee Receives Further Testimony on Potential Changes to the Smog Check Program - Numerous Garage Owners Speak in Opposition to Centralized Testing (page 3)
- CARB Board Approves Report to the Legislature Regarding Technologies Capable of Identifying High-Emitting Vehicles - Report Highlights Limitations of Remote Sensors (page 7)
- CARB Holds Workshop Regarding Long-Delayed Phase 2 Reformulated Gasoline Predictive Model - Model Development Still Not Finished (page 13)
- CARB Staff Proposes Non-Compliance Penalty Program for Diesel Fuel as a Means of Avoiding a Potential Fuel Shortage Beginning in October 1993 (page 17)
- CARB Issues Formal Announcement that Installation of Retail Outlets for Alternative Fuels Will Not Be Required for 1994 (page 21)
- CARB Adopts Regulations Requiring Periodic Smoke Inspections for Heavy-Duty Diesel Vehicles Despite Vocal Opposition from the Trucking Industry (page 22)
- CARB Holds Workshop Regarding Emission Controls for Locomotives (page 31)
- Rulemaking Calendar Update (page 40)

## December 1992

- CARB Issues Supplemental Staff Report for "Low-Emission Vehicle" Hearing - Numerous Problems Cast Doubt on Validity of Phase 2 Reactivity Adjustment Factors (page 1)
- CARB Rejects WSPA Petition Requesting Repeal of Reactivity Adjustment Factor Regulations - WSPA Files Suit Against CARB in Los Angeles Superior Court (page 9)
- I/M Review Committee Firms Up Recommendations for Smog Check Program Changes - Committee Supports "Test Only" Inspections with a Repair and Retest Option for "Gold Shield" Stations (page 10)
- CARB Continues to Worry About the Availability of Low-Sulfur, Low-Aromatic Diesel Fuel (page 16)
- CARB Adopts Revised Procedures for Qualifying New or Substitute Clean Fuels Aligning Regulations with Those for Phase 2 Gasoline (page 17)
- Annual Air Quality Trends Update - Most Vehicle-Related Peak Pollution Levels Continue Gradual Downward Trends (page 21)
- Rulemaking Calendar Update (page 40)



## **November 1992**

- CARB Receives Petition Requesting that the Agency Repeal Its Regulations Regarding Reactivity Adjustment Factors (page 1)
- CARB Issues Proposed Regulations Establishing a Periodic Heavy-Duty Smoke Inspection Program, Changing the Roadside Program, and Allowing Low-Sulfur Diesel Fuel for Emissions Testing (page 3)
- CARB Petitioned to Delay the Implementation of Regulations for Utility and Lawn and Garden Engines - Lack of EPA Action on Nonroad Sources Cited as Major Concern (page 6)
- Second Draft of I/M Review Committee Report to Legislature Lends Support to "Hybrid" I/M Program With Transient Testing at Centralized Stations and Retest and Repair at Garages Using Steady-State Dynos (page 7)
- Analysis of Latest Smog Check Data Reveals Little Change in Program Performance Over the Last Year (page 13)
- Rulemaking Calendar Update (page 19)

## October 1992

- CARB Issues Hearing Notice for Proposed Changes to LEV Regulations - Preliminary Reactivity Adjustment Factors for Phase 2 Gasoline Indicate Little or No Reactivity Benefit (page 2)
- CARB Holds Workshop Regarding Proposed Changes to NMOG and Assembly-Line Test Procedures - Some Changes Will Significantly Increase Costs Without Providing Air Quality Benefits (page 4)
- CARB Holds Workshop on Proposed Low-Emission Standards for Transit Buses - CARB Backs Off on Forcing Alternative Fuels (page 10)
- CARB Holds Workshop Regarding Report Prepared by Acurex on the Technical Feasibility of Further Reducing NO<sub>x</sub> and Particulate Emissions from Heavy-Duty Engines - Report Recommends that CARB Consider a "Low-Emission Truck" Program Patterned After the LEV Program (page 16)
- CARB Adopts Regulations Requiring Phase-Out of CFC Refrigerants in Automotive Air Conditioning Systems (page 27)
- I/M Review Committee's Draft Report to the Legislature Outlines A Wide Range of Potential Program Changes - Changes Needed to Meet EPA Requirements Are Projected to Increase Testing Costs Substantially, Unless Centralized Inspection Stations Are Used (page 32)
- CARB Holds Workshop on Proposed Guidelines for Mobile Source Credit Programs Involving Low-Emission Buses, Vehicle Scrappage, and the Early Introduction of ZEVs (page 40)
- CARB Presents Planned Short-Term Improvements in On-Road Mobile Source Emission Inventory (page 45)
- CARB Proposes Changes to Procedures for Qualifying New and Substitute Clean Fuels - Changes Would Align Procedures with Those Adopted for Demonstrating Equivalence of Alternative Gasoline Specifications with Phase 2 Gasoline (page 47)
- CEC Holds Hearing on Oxygenate Supply Outlook - Staff Report Suggests Supplies of Methanol and MTBE May Be Tight in the Late '90s; California Methanol Demand Forecast, However, is Based on Dubious Assumptions (page 48)
- Legislation Update - (page 56)
- Rulemaking Calendar Update (page 61)

## September 1992

- CARB Adopts Certification Fuel Specifications for Phase 2 Gasoline (page 1)
- CARB Holds Workshop on Proposed Changes to the LEV Regulations - Requirements for Hybrid Electric Vehicles Appear to be Overly Stringent (page 6)
- CARB Issues Letter to Fuel Suppliers Cancelling Requirements for Installation of Retail Outlets for Alternative Fuels for 1994 (page 15)
- CARB Issues 15-Day Notice for Regulations Regarding Alternative-Fuel Specifications - High RVP Limits for Commercial M85 Relative to Certification Fuel May Lead to Excess Evaporative Emissions (page 15)
- CARB Rescinds MAC Regarding Certification of Heavy-Duty Diesel Vehicles (page 18)
- Legislation Update - Several Bills Are Now on the Governor's Desk (page 18)
- Rulemaking Calendar Update (page 25)

## August 1992

- CARB to Hold Workshop Regarding Changes to the LEV Regulations - A Large Number of Relatively Minor Changes are Proposed (page 1)
- CARB to Consider Regulations Eliminating the Use of CFCs in Auto Air Conditioning Systems - Current Proposal Includes Several Changes Requested by Manufacturers (page 6)
- I/M Review Committee Takes Testimony on Smog Check Program Changes - Little Support for Centralized Testing is Evident,
- But Additional Requirements for Dynamometer Testing are Widely Accepted (page 8)
- CARB Issues MAC Regarding Certification of Heavy-Duty Diesel Vehicles (page 15)
- CARB Issues MAC Regarding Certification of Utility and Lawn and Garden Engines (page 17)
- Legislation Update (page 18)
- Rulemaking Calendar Update (page 24)

## July 1992

- CARB Board Hears Status Report on the Implementation of the "Low-Emission Vehicles" and "Clean Fuels" Regulations - Board Finds Standards Technologically Feasible on Conventional Gasoline Despite a Lack of Durability Data (page 2)
- CARB Moves to Finalize Revisions to OBD II Regulations - Changes Provide Only Modest Extensions in Lead Time for Manufacturers (page 22)
- CARB Issues Proposed Specifications for Phase 2 Certification Gasoline - New Proposal Contains Only Minor Changes to Specifications Originally Proposed in March (page 23)
- CARB Issues First "Clean" Diesel Fuel Certification to Chevron - Chevron's Approval Based on Demonstration of Equivalent Emissions, Rather Than Compliance with CARB Specifications (page 27)
- CARB Holds Workshop on Revised EMFAC Speed Correction Factors - New Factors Indicate that Current Emissions Model Significantly Underestimates Emissions (page 29)
- CARB Issues MAC Extending 4% Trigger Level for Warranty Reporting Requirements to 1993 and Subsequent Model-Year Vehicles (page 32)
- CARB Board Reviews Plans for Research Projects - Four New Studies Related to Mobile Source Emissions Are Proposed (page 33)
- Legislation Update (page 35)
- Rulemaking Calendar Update (page 42)

## June 1992

- CARB to Hold Hearing Regarding a Status Report on the Implementation of the LEV Program - No Written Report to be Issued (page 2)
- CARB Issues Proposed Revisions to OBD II Misfire and Evaporative System Monitoring Requirements - Board Attempts to Answer Industry Concerns with Increased Leadtime (page 2)
- CARB Adopts Regulations for Alternative Fuel Retrofits, But Delays Their Implementation (page 4)
- CARB Approves Control Plan for Off-Highway Vehicles - Board Plans to Move Ahead with Regulations Without Waiting for EPA to Define Preempted Sources (page 9)
- CARB Issues MAC Providing Guidance on Requirements that Certification Vehicles Pass Smog Check (page 14)
- CARB Decides to Deny Independent Refiners Extensions to Comply with Phase 2 Gasoline Regulations (page 15)
- CARB Adopts Changes to Criteria Used in Determining Attainment with Air Quality Standards - Changes May Make Attainment Easier for Areas Close to Meeting Standards (page 19)
- I/M Review Committee Discusses Costs of Alternative I/M Programs (page 22)
- Legislation Update (page 26)
- Rulemaking Calendar Update (page 34)

## May 1992

- CARB Holds Workshop Regarding CFC Phase-Out - Staff Ignores Previous Findings and Pursues Regulations (page 1)
- CARB Holds Workshop on OBD II Requirements - CARB and Manufacturers Still Dispute Feasibility of Requirements (page 10)
- Transit Districts Decry High Costs of Alternative Fuels at CARB Workshop on Low-Emission Standards for Transit Buses (page 17)
- CARB Issues Final Version of Regulations Regarding Reactivity Adjustment Factors - Airshed Modeling Shows MIR Scale Biased Towards M-85 (page 25)
- CARB's Proposed Periodic Heavy-Duty Smoke Inspection Program Focuses on Frequent Testing, Not Effective Repairs (page 27)
- CARB Staff Holds Workshop on Emission Regulations for Non-Road Sources in Effort to Minimize Criticism of Its Programs (page 34)
- CARB Staff Proposes Control Plan for Off-Highway Vehicle Engines (page 38)
- CARB Approves Report to the Legislature Concerning Unfinished Fuels and Fuel Blending Components - Staff Seeks Regulatory Authority to Control Sales (page 40)
- CARB to Consider Adopting More Stringent Regulations for Alternative Fuel Retrofit Systems - Proposed Regulations are Virtually Identical to June 1991 Draft (page 41)
- Legislation Update (page 42)
- Rulemaking Calendar Update (page 51)

## April 1992

- CARB Adopts Specifications for Alternative Fuels - Sulfur Specs Tightened But Wide Volatility Range Allowed for M-85 (page 2)
- Board Member Roberta Hugan Steps Down and is Replaced by Petaluma, California Mayor Patricia Hilligoss (page 9)
- CARB Identifies Formaldehyde as a Toxic Air Contaminant in Relatively Pro-Forma Action (page 9)
- CARB Holds Workshop on Phase 2 Gasoline Predictive Model and Certification Test Fuel - No Details Provided on Criteria CARB Will Accept to Demonstrate Equivalency (page 10)
- Methanol Price Increases Forecast at California Energy Commission Workshop on Oxygenates (page 17)
- CARB Considers Modifications to Its New Evaporative Emission Test Procedures in Apparent Attempt to Satisfy EPA Concerns (page 24)
- CARB Issues MAC Outlining Its Policy on False MIL Illumination - MAC Says Recall Required in All Cases (page 26)
- I/M Review Committee Discusses Cost of Enhanced I/M, No Pass/No Pay Inspections, Buy-Back Programs, and Measures to Increase Compliance with Vehicle Registration Renewal Requirements (page 27)
- Legislation Update - DRIVE+ Legislation Dropped (page 30)
- Rulemaking Calendar Update (page 41)



## March 1992

- CARB Conducts Post-Hearing Workshop on Reactivity Adjustment Factors (RAFs) (page 2)
- CARB Conducts Workshop in Preparation for Biennial Report on the Status of Its Low-Emission Vehicle Program (page 5)
- CARB Experiences Difficulties in Obtaining Estimates of Numbers of Alternatively Fueled Vehicles to be Produced in 1994 (page 13)
- CARB Holds Technical Seminar on Low-Emission Control Technologies for Heavy-Duty Vehicles as a Prelude to Regulatory Action (page 14)
- CARB Heavy-Duty Smoke Program Focus of Considerable Activity:
  - Truckers File Suit Against Roadside Smoke Program (page 24)
  - CARB Issues Preliminary Proposal to Expand Smoke Inspections to all Heavy-Duty Vehicles (page 24)
  - CARB Issues MAC Regarding Compliance with Smoke Standards of Vehicles Equipped with Aftermarket Turbochargers (page 28)
- Legislation Update - Several New Bills Are Focused on Governmental Subsidies and Other Misdirected Efforts Related to Developing a Low-Emission Vehicle Manufacturing Base in California (page 29)
- CARB 1992 Rulemaking Calendar - New Vehicle-Related Regulatory Actions Planned for 1992 (page 40)

## **February 1992**

- CARB Status Report on Manufacturer Compliance with Reporting Requirements for Failed Emission-Related Components Indicates More Study Needed to Finalize Appropriate Reporting Triggers (page 1)
- CARB Holds Workshops on Computerized Reporting of Warranty-Related Emission Component Failures and the Implementation of the CARB/DMV Registration Renewal/Recall Tie-In Program (page 5)
- I/M Review Committee Discusses Latest Remote Sensing Data - Few Defective Cars Caught When Standards Set to Minimize False Failures (page 8)
- CARB Adopts Regulations for 1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines and Equipment Engines (page 10)
- Legislation Update (page 17)
- Rulemaking Calendar Update (page 21)

## **January 1992**

- CARB Adopts Wintertime Oxygenate Regulations Requiring 2% Oxygen in Gasoline Beginning in November 1992 (page 1)
- CARB Postpones Action on Regulations Regarding Composition of Alternative Fuels, But Releases Modifications to Its Original Proposal (page 6)
- CARB Calls for Fundamental Changes in Smog Check Program During Legislative Hearings on I/M - Current Program Benefits Estimated at 16% HC, 14.5% CO, and 7.6% NO<sub>x</sub>, Far Short of Legislative Goals (page 7)
- Manufacturer-Specific Results Show Wide Variations Across Model Years and Nameplates (page 11)
- CARB Staff Holds Workshop on Criteria Used in Determining Compliance with State Air Quality Standards Which May Make Compliance Easier for Areas Near Attainment (page 18)
- Rulemaking Calendar Update (page 18)

## **December 1991**

- CARB Adopts Phase 2 Reformulated Gasoline Requirements Expected to Increase Gasoline Prices by About 20 per Gallon Beginning in 1996 (page 1)
- After a Flurry of Last-Minute Changes, CARB Adopts Reactivity Adjustment Factor of 0.41 for Methanol-Fueled Vehicles - Testimony Challenges Validity of Maximum Incremental Reactivity (MIR) Approach (page 9)
- EPA Asks California I/M Review Committee to Switch to I/M 240 Test Regime - Systems Control Says Cost Can Be Held to \$17 Per Test (page 14)
- CARB Staff Proposes Standards for Off-Road Diesel Engines - Proposed Control Level Similar to That For On-Road Engines (page 17)
- Annual Air Quality Trends Update - Vehicle-Related Peak Pollution Levels Lower in 1990 - Aberrant SO<sub>2</sub> Level Recorded in South Central Coast Basin (page 21)
- Rulemaking Calendar Update (page 36)

## **November 1991**

- Final CARB Staff Proposal for Phase 2 Reformulated Gasoline Would Be Highest Cost Per Ton of Control Ever Adopted - Gasoline Prices Projected to Rise By Up to 28 Cents Per Gallon (page 1)
- CARB Staff Proposal for Alternative Fuel Specifications Would Allow Methanol to Contain More Sulfur Than Reformulated Gasoline (page 6)
- CARB Staff Presents Plan for Control of Marine Vessel Emissions - Performance Standards and Fuel Specifications Expected (page 9)
- I/M Program Update - Failure Rates Are Dropping With Use of New BAR 90 Analyzers (page 20)
- Legislation Update (page 22)
- Rulemaking Calendar Update (page 25)

## October 1991

- Board Adopts More Stringent On-Board Diagnostic System Requirements Despite Manufacturers' Concerns Regarding Technological Feasibility and Lead Time (page 1)
- Reactivity Adjustment Scheme Discussed at Workshop - CARB Staff Intends to Keep Adoption on Schedule Despite Technical Problems with Proposed Method (page 7)
- CARB Staff Proposes Revised Maximum Incremental Reactivity Scale and Reactivity Adjustment Factors for Transitional Low-Emission Vehicles (TLEVs) (page 14)
- Progress Report to I/M Review Committee on Evaluation of Smog Check Program Indicates Modest Emission Reductions Being Achieved - Committee Refuses to Endorse Legislative Proposal for Remote Sensing (page 18)
- Legislation Update (page 21)
- Rulemaking Calendar Update (page 27)

## September 1991

- CARB Staff Embraces ARCO Specifications for "EC-X" Reformulated Gasoline at Workshop (page 1)
- Latest Reactivity Adjustment Protocol Indicates CARB Will Adopt Maximum Incremental Reactivity Scheme Despite Concerns Regarding Its Validity (page 8)
- CARB Staff Proposes Further Revisions to OBD II Requirements -- Hearing Set for September 12 (page 9)
- CARB/DMV Begin Program Requiring Compliance With Emission Recalls as Condition of Registration Renewal -- Manufacturers Required to Report VINs of Uncorrected Vehicles After Six Months (page 10)
- CARB Cracks Down on Sales of California Emissions Labels (page 11)
- CARB Report Proposes Control of Locomotive Emissions through Fuel Specification Changes and Retrofit of Old Engines -- Formal Proposal Expected Fall 1992 (page 12)
- Legislation Update (page 14)
- Rulemaking Calendar Update (page 22)

## August 1991

- I/M Review Committee Encouraged to Support Remote Sensing By L.A. County District Attorney - \$500 Fine for First Offense Proposed if Tampering is Detected - Committee's Report to Legislature Suggests California May Need to Consider Centralized I/M (page 1)
- Further Changes to Reactivity Adjustment Scheme Discussed at CARB Workshop - Adoption Remains on Schedule Despite Concerns about Validity and Accuracy of Proposed Technique (page 4)
- CARB Staff Proposes Revised Procedures for Alternative Fuel Retrofits to Reduce the Risk of Emissions Increases (page 9)
- Legislation Update (page 15)
- Rulemaking Calendar Update (page 23)



## July 1991

- Fuels-Related Issues Dominate CARB's Agenda:
- Workshop Held on "Phase 2" Reformulated Gasoline - CARB Staff Proposes Long List of Proposed Specifications Without Supporting Analysis of Cost or Effectiveness (page 1)
- Reactivity Adjustment Factors Discussed at "Public Meeting" - Uncertainty Regarding Accuracy of "Maximum Incremental Reactivity" Method Continues as Deadline for Adoption of Method Approaches (page 5)
- CARB Staff Proposes Procedures for Certification of "Substitute Clean Fuels" - Substantial Vehicle Testing Program Proposed to Obtain Approval of New Fuels (page 9)
- CARB Staff Proposes Further Changes to On-Board Diagnostic Regulations - Staff Delays EPA Recommended Requirement to Predict Catalyst Efficiency on FTP (page 14)
- Legislation Update (page 16)
- Rulemaking Calendar Update (page 24)

## June 1991

- CARB Staff Seeks Further Enhancements to On-Board Diagnostic (OBD) System Requirements (page 1)
- Board Adopts Administrative Hearing Procedures for Roadside Smoke Inspection Program - Trucking Industry Threatens Flood of Appeals (page 8)
- Board Adopts Guidance Documents on Transportation Control Measures - High Occupancy Vehicle Lanes Receive CARB Blessing Despite Dispute Over Long-Term Benefits (page 16)
- I/M Review Committee Meeting Hears Update on Evaluation of Smog Check Program - Compliance With 25% Reduction Target Appears Questionable (page 26)
- Legislation Update (page 29)
- Rulemaking Calendar Update (page 39)

## **May 1991**

- Conference on Reactivity Adjustment Factors Uncovers Potential Problems with CARB's Regulations - Airshed Model Results Indicate Current CARB Approach May Result in Improper Ranking of Different Fuels (page 1)
- Further Discussion of Reactivity Adjustment Factors Occurs at "Public Consultation Meeting" on Reactivity Adjustment Factors (page 11)
- Legislation Update - "Drive Plus" Bill Runs Into Trouble (page 18)
- Rulemaking Calendar Update (page 30)

## April 1991

- CARB Staff Provides Additional Warning to Manufacturers Regarding "Off-Cycle" Emissions - New Study Shows Some Vehicles Have 100-Fold Increase in CO Emissions During Hard Accelerations (page 1)
- CARB Staff Announces That Registration-Enforced Recalls Are Scheduled to Begin in August - Department of Motor Vehicles Will Be Sending Thousands of Vehicle Owners to New Car Dealers (page 5)
- EPA Receives Lukewarm Reception from California I/M Review Committee Regarding EPA Staff Push For Addition of Transient, Loaded Mode Testing and Functional Evap System Checks to California I/M Program (page 7)
- CARB Holds Workshop With Utility, Lawn, & Garden Engine Makers In Preparation for Upcoming Certification Program (page 10)
- Legislation Update (page 11)
- Rulemaking Calendar Update (page 21)

## March 1991

- CARB Staff Tells Board It Does Not Expect New Federal Clean Air Act to Significantly Affect California - However, Cleaner 49-State Cars Will Reduce Emissions in California Also (page 1)
- Board Members Receive Overview of 1991 Rulemaking Calendar (page 4)
- Board Members Receive Staff Briefing on "Advances in Low Emission Vehicle Technology" (page 6)
- San Bernardino County Supervisor Barbara Riordan Replaces John Cefalu as Board Member (page 8)
- Legislation Update - New Bill Attempts to Limit Inspection Fee for Smog Check Program (page 8)

## February 1991

- EPA Assistant Administrator for Enforcement James Strock Replaces Jananne Sharpless as California's Head Environmental Regulator - Sharpless Appointed Full-Time ARB Chair (page 1)
- California I/M Review Committee to Seek Flexibility Regarding \$450 Repair Expenditure Provisions of New Clean Air Act Amendments - Committee Also Decides to Study Cost of Converting to Centralized I/M (page x)
- CARB Staff Proposes Emission Standards for Off-Highway Vehicles and Equipment #40 HP - Proposed Standards Would Cover Golf Carts, Snowmobiles(!), Portable Generators, As Well As Agricultural and Construction Equipment Pre-empted by Clean Air Act Amendments (page xx)
- Details Remain Fuzzy After Another CARB Workshop on Transportation Control Measures (page xx)
- Legislation Update (page x)
- Rulemaking Calendar Update - Ten Vehicle-Related Items Listed On CARB Rulemaking Calendar for 1991 (page x)

## January 1991

- Northeast States Planning New Analysis of California Standards - "NESCAUM" States Will Investigate Feasibility of Adopting "Low Emission Vehicle" Standards (page 1)
- CARB Tightens Regulation Allowing Refiners to Demonstrate Equivalence with Low Aromatic Diesel Fuel (page x)
- CARB Adopts Regulation to Control Emissions From Lawn and Garden Equipment (page x)
- CARB Staff Proposes Changes to "Clean Fuels" Regulations (page x)
- CARB Staff Updates Mobile Source Plan - Regulation Development Efforts Announced for Off-Road Motorcycle Standards and Transportation Control Measures (page x)

# Attachment C



## Attachment C

### Documents Considered by James M. Lyons

<u>Document Title/Bates Numbers</u>	<u>Document Date</u>
<b>Legal Pleadings</b>	
Fourth Amended Complaint for Violations of the Federal Securities Laws, <i>Gary Koopmann, Timothy Kidd and Victor Pirnik, Individually and on Behalf of All Others Similarly Situated v. Fiat Chrysler Automobiles N.V., FCA US LLC, Sergio Marchionne, Scott Kunselman, Michael Dahl, Steve Mazure, and Robert E. Lee</i> , Civ. Action No:15-cv-07199-JMF (S.D.N.Y.)	August 24, 2017
Affidavit of Roger Orteca	July 6, 2018
<b>Expert Reports</b>	
Expert Report of Christopher M. Atkinson and documents cited therein	August 15, 2018
<b>Depositions</b>	
Deposition of Kasser Jaffri (MDL), with Exhibits	June 6, 2018
Deposition of Kasser Jaffri ( <i>Pirnik</i> ), with Exhibits	June 6, 2018
Deposition of Emanuele Palma, with Exhibits	June 22, 2018
Deposition of Tamas Szailer, with Exhibits	July 9, 2018
Deposition of Steven Mazure, with Exhibits	July 10, 2018
Deposition of Hal Zatorski, with Exhibits	July 11, 2018
Deposition of Michael P. Berry, with Exhibits	July 13, 2018
Deposition of Christopher M. Atkinson, with Exhibits	September 25, 2018
<b>Press Articles</b>	
Peterka, Amanda, "Transportation lab revs up for role in climate crackdown," <i>E&amp;E News</i> , <a href="https://www.eenews.net/stories/1060019511">https://www.eenews.net/stories/1060019511</a> , accessed on September 25, 2015.	June 2, 2015
<b>Letters</b>	
Letter from B. Bunker to Manufacturers re: EPA Conducted Confirmatory Testing, <a href="https://19january2017snapshot.epa.gov/sites/production/files/2015-10/documents/cd-mfr-guid-ltr-2015-09-25.pdf">https://19january2017snapshot.epa.gov/sites/production/files/2015-10/documents/cd-mfr-guid-ltr-2015-09-25.pdf</a> , accessed September 25, 2018	September 25, 2015
Letter from A. Hebert to Manufacturer re: Reference No. IUC-2015-008, <a href="https://www.arb.ca.gov/newsrel/arb_iuc_2015_09_25_final_signed_letter.pdf">https://www.arb.ca.gov/newsrel/arb_iuc_2015_09_25_final_signed_letter.pdf</a> , accessed September 25, 2018.	September 25, 2018
<b>Agency Reports and Publications</b>	
Office of Inspector General, "Audit Report: Process Improvements are Needed for Identifying and Addressing Vehicle Safety Defects"	October 6, 2011

**Document Title/Bates Numbers****Document Date****Websites**

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“Certification and Fuel Economy for Light-Duty Passenger Cars and Trucks,” EPA,  
<https://www.epa.gov/vehicle-and-engine-certification/certification-and-fuel-economy-light-duty-passenger-cars-and-trucks>, accessed on September 25, 2018.

“Certification Application Reporting Guidance; CD-14-19,” EPA,  
[https://iaspub.epa.gov/otaqpub/display\\_file.jsp?docid=33582&flag=1](https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=33582&flag=1), accessed September 25, 2018.

“Final Rule for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and heavy-duty Engines and Vehicles – Phase 2,” EPA, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-greenhouse-gas-emissions-and-fuel-efficiency>, accessed September 25, 2018.

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<https://www.arb.ca.gov/msprog/manufacturers.htm>, accessed September 25, 2018.

“MSPC Advisory Circular; December 11, 1972,” EPA,  
[https://iaspub.epa.gov/otaqpub/display\\_file.jsp?docid=14341&flag=1](https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14341&flag=1), accessed on September 25, 2018.

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<https://www.arb.ca.gov/msprog/onroad/cert/ldctp/ldctp.htm>, accessed on September 25, 2018.

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<https://iaspub.epa.gov/otaqpub/>, accessed September 25, 2018.

“Search—EPA’s Transportation and Air Quality Document Index System (DIS),” EPA,  
<https://iaspub.epa.gov/otaqpub/pubsearch.jsp>, accessed September 25, 2018. Choose “Certificates of Conformity” under “Compliance Document Type” to search for the Certification Information Reports.

“Annual Certification Data for Vehicles, Engines, and Equipment,” EPA,  
<https://www.epa.gov/compliance-and-fuel-economy-data/annual-certification-data-vehicles-engines-and-equipment>, accessed September 25, 2018. The relevant data is available for 2014-2016 model-years.

**Other**

EPA420-F-98-016, June 1998.

June 1998

CARB Executive Order A-009-1257-1

February 11, 2015

## LIST OF MATERIALS CONSIDERED

FCA-MDL-000219342	FCA-PIRNIK-001050512	FCA-PIRNIK-001317467
FCA-MDL-000295192	FCA-PIRNIK-001051918	FCA-PIRNIK-001317469
FCA-MDL-000375752	FCA-PIRNIK-001053122	FCA-PIRNIK-001317475
FCA-MDL-000376764	FCA-PIRNIK-001054167	FCA-PIRNIK-001332011
FCA-MDL-000377586	FCA-PIRNIK-001054192	FCA-PIRNIK-001332012
FCA-MDL-000377747	FCA-PIRNIK-001056636	FCA-PIRNIK-001332013
FCA-MDL-000377749	FCA-PIRNIK-001056888	FCA-PIRNIK-001332014
FCA-MDL-000377754	FCA-PIRNIK-001083145	FCA-PIRNIK-001332015
FCA-MDL-000416569	FCA-PIRNIK-001098943	FCA-PIRNIK-001332018
FCA-MDL-000431528	FCA-PIRNIK-001102905	FCA-PIRNIK-001332019
FCA-MDL-000478134	FCA-PIRNIK-001116764	FCA-PIRNIK-001332031
FCA-MDL-000741125	FCA-PIRNIK-001116767	FCA-PIRNIK-001332032
FCA-MDL-000748062	FCA-PIRNIK-001116902	FCA-PIRNIK-001332337
FCA-MDL-001449549	FCA-PIRNIK-001116903	FCA-PIRNIK-001332338
FCA-MDL-001521474	FCA-PIRNIK-001120673	FCA-PIRNIK-001333796
FCA-PIRNIK-000153167	FCA-PIRNIK-001120678	FCA-PIRNIK-001333800
FCA-PIRNIK-000469200	FCA-PIRNIK-001167902	FCA-PIRNIK-001341363
FCA-PIRNIK-001038541	FCA-PIRNIK-001175168	FCA-PIRNIK-001353323
FCA-PIRNIK-001038542	FCA-PIRNIK-001188414	FCA-PIRNIK-001353745
FCA-PIRNIK-001038550	FCA-PIRNIK-001203944	FCA-PIRNIK-001402710
FCA-PIRNIK-001038551	FCA-PIRNIK-001203947	FCA-PIRNIK-001415684
FCA-PIRNIK-001038575	FCA-PIRNIK-001203954	FCA-PIRNIK-001415688
FCA-PIRNIK-001038576	FCA-PIRNIK-001206694	FCA-PIRNIK-001415691
FCA-PIRNIK-001038614	FCA-PIRNIK-001206701	FCA-PIRNIK-001415694
FCA-PIRNIK-001038616	FCA-PIRNIK-001208374	FCA-PIRNIK-001415695
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